The University of Kansas
Department of Chemistry
2010 Malott • Lawrence, Kansas 66045-0046

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Dear Alumni and Friends,

This year's Chemistry Newsletter is about to go to press amid serious concerns for the next budgetary cycle. The current governor has decided that the State of Kansas has been overtaxed; her answer is to reduce services, cut the budgets of education at all levels and reduce the state's commitments to vital social services. The impact on our department is both unfortunate and untimely, for we are unable to complete searches for much needed new faculty.

In spite of this year's pessimistic outlook, the Department has had an unusually successful period of grant productivity, graduate student recruiting and undergraduate accomplishment. If we are forced to cut back, our commitment in each or even one of these areas will be seriously affected.

I will not enumerate all of our successes this past year since Grover Everett has once again done a fine job of compiling and editing the annual Newsletter which details our activities and provides nostalgic glimpses into the past. He has expanded the news section to which many of you have contributed this year. We hope you will make it a regular habit to write to the Department to keep us informed of the events we can include in that section.

We successfully completed our search for an experimental physical chemist earlier this year, and Dr. Robert ("Bob") Bowman will join our faculty in August. Bob is a graduate of Johns Hopkins and received his Ph. D. from Columbia in 1988 under the direction of Professor Kenneth Eisenthal. He is currently completing his postdoctoral work with Professor Ahmed Zewail at Cal. Tech. The search committee, chaired by Professor Shih-I Chu, considered over 155 applicants of whom five were invited to the campus for interviews. All five were top-notch young chemists who would have added strength to our teaching and research program. The committee recommended Bob as their first choice and the Department unanimously concurred. After a brief period of negotiations between the administration, Bob and myself, we came up with a mutual agreement that will assure him of the resources he will need to begin his academic career.

In February, another committee, co-chaired by Carey Johnson and Mark Richter (Biochemistry) was organized from the Departments of Biochemistry and Chemistry to search for a replacement for Professor Vedani. Angelo resigned in December to take up the directorship of a computational group at the Swiss Institute for Alternatives to Animal Testing based in Zurich, Switzerland. At the time of this writing, interviews of five candidates have been completed and negotiations were just beginning when the Governor froze all positions. Yet a third search will be initiated during the summer for an analytical chemist to join George Wilson, Craig Lunte, Buzz Adams, and Ted Kuwana.

Dean Muyskens and Associate Dean Sally Frost-Mason were especially supportive in our recruiting efforts. They were able to arrange for the funds necessary to provide Dr. Bowman with the laser equipment which he will need to start his research program at KU next fall. The Department is especially appreciative of the College's support during a period in which it has become very difficult to find the funds for any aspect of our educational program, whether it be for equipment for the teaching and research laboratories or stipends for our teaching assistants.

The faculty celebrated the career of Rey Iwamoto upon his retirement at the end of the Fall semester. He and Florence are enjoying their "freedom" and travel to see their children and grandchild as well as to get some much needed R and R. They have just returned from Vermont where Rey completed a course in "how to fly fish". It is rumored that he earned the highest grade in the class, an A+!!!

Our other emeritus faculty, who seem to be increasing in number more rapidly than our work force (an indication of the prolific hiring years after WWII), have continued their affiliation with the Department and its activities. Brick and his wife, Anne, have moved into the Presbyterian Manor in Lawrence and participate in civic and University activities. Bill Argersinger was hospitalized earlier this spring and is well along the way to recovering from surgery to remove a brain tumor. Paul Gilles helped cosponsor the biennial Midwest Thermodynamics Conference this June. He was honored on the occasion of his 70th birthday (which was actually last January). Charles ("Bert") Reynolds, Ernie Griswold and Arthur Davidson also keep in touch through personal contacts with various faculty.

Jake Kleinberg was the speaker at the Honors Banquet which was, as always, a most pleasant occasion. The list of the students recognized this year and the awards which they won are listed in the Newsletter.

The faculty has been hard at work writing

proposals to upgrade the teaching and research facilities in the Department, a vitally important contribution to our program. Although the results of their efforts are listed near the end of the Newsletter, I felt it important to highlight these accomplishments.

A joint proposal written by Professors Johnson, Busch and Wilson won funding through the Shared Instrumentation Grant from NSF. With state matching funds the grant will be used to develop a Raman/FT Infrared facility in Malott.

As part of our outreach efforts in chemistry, we have again been able to offer an NSF-sponsored summer research program for College Teachers. Five faculty members from colleges are invited to be part of a research program with members of our faculty for ten weeks in the summer. This program, in its fifth year, is directed by Ted Kuwana and Barbara Schowen with a grant of $56K from NSF. Our NSF Undergraduate Research Experience (REU) Program grant was also renewed with NSF for $40K and matched with another $20K from the College and the Department. The NSF-REU program is directed by Barbara Schowen and Marlin Harmony and brings 12 to 15 undergraduates from colleges throughout the Midwest to spend a summer in a research group in the Chemistry Department where they experience the life of a graduate student and professional chemist.

Three equipment grants for the undergraduate laboratory have been obtained from NSF and industry. The Nuclear Magnetic Resonance Facility will be fitted with robotics to permit fast sample changing so that undergraduates will have spectra from our high field instrument. Also provided in the grant will be computer simulation of the instrumental output which will enable students to gain "hands-on" experience with this sophisticated technique of NMR. This grant of $24K from NSF and $24K in University matching funds was written by Jack Landgrebe, Ken Ratzlaff and Dave van der Velde. An NSF undergraduate equipment grant to equip our new analytical instrumentation course, submitted by George Wilson and Craig Lunte, was funded for $20K and will be matched through University funds. Craig and George also successfully negotiated a $64K equipment grant from Hewlett Packard for the same laboratory.

Jack Landgrebe led a team of faculty and administrators in writing a proposal for the NSF Research Facilities Modernization Program. This new program will fund the improvement of 35 research laboratories in Chemistry and will support the conversion of the recently vacated 6th floor library into three research services laboratories. The funding for these improvements will come from the $300K from NSF which will be matched by another $300K from State resources.

In total, these eight successful proposals by the Chemistry Department will provide over $1.1M in improved programs and facilities of which approximately two thirds is derived from federal and industrial support and one third from the State of Kansas. A dedicated faculty has made this all possible and the benefits to the Department and the University are immeasurable.

Several University administrative changes have occurred or are underway. Following last year's resignation of the Executive Vice Chancellor Judith Ramaley to take up the presidency of Portland State University, this spring Vice Chancellor Francis Horowitz announced that she will become the president of the Graduate School of the City University of New York. Dr. Horowitz has been a very effective and forceful leader of the research arm of the University for the past thirteen years. We, in Chemistry, and I in particular, will remember her leadership in encouraging interdisciplinary research efforts such as her successful work in assisting Tak Higuchi in 1983 in launching the Center for Bioanalytical Research, now part of the Higuchi Biosciences Center.

I will close with a very hearty THANK YOU to all who were so generous to the Department's Endowment funds and to the scholarship funds honoring former faculty members Paul Gilles, Rey Iwamoto and J.K. Lee. There is always a silver lining to every cloud! Donations to all three of these new funds surpassed their original goals and will begin generating sufficient income for us to proceed with making awards in the next year. In addition, the response to our "undergraduate assessment survey" was excellent; over a third of you returned forms with very helpful information and suggestions. We are now in the process of collating and analyzing your responses. Finally, I will close with my best wishes to each of you for a successful year.

June 6, 1991 Richard S. Givens

*****This newsletter was ready to go to press when a fire, apparently initiated by lightning, destroyed historic Hoch Auditorium on June 15. Hoch was completed in 1927 and was used in its early years for KU basketball games. The impact of this disaster on the Department of Chemistry will be enormous, since**

we have depended on Hoch as the only large auditorium on campus in which to teach nearly 3,000 students each year in undergraduate general and organic chemistry classes.

From the editor:

It was good to hear news from so many of you again this year. Let's keep it up! I was especially pleased to hear from two of our most senior alumni, John Eckel (A.B. 1925) and Irwin Douglass (Ph.D. 1932).

I persuaded John Eckel to write a short article for this newsletter describing life at KU in the early 1920's. A picture of John and some of his colleagues along with several chemistry faculty members is included.

Last year's newsletter included photographs of our current faculty, so this year I decided to remind you of "the way we were." I was able to find one reasonably good photograph for each decade, beginning with 1944. Some of you may even find yourselves in the 1959 photograph!

Since several of our current faculty members are involved in interdisciplinary bioanalytical research, an article describing these activities is included as the research component of this year's newsletter.

As in previous newsletters, the last page is designed to facilitate your response to us. We always welcome any personal news you care to send us.

DID YOU KNOW THAT....

KU received four stars for academics in the 1991 edition of the Fiske Guide to Colleges. No other school in the Big Eight Conference received more than three stars in this category. Only eight public institutions in the US received higher marks for academic quality. KU's high academic rating was based on its reputation in the academic world, the quality of its faculty, its level of research and teaching, the academic ability and seriousness of KU students, and the quality of KU's libraries and other facilities.

KU currently has 50 National Merit Scholars. Only 15 public universities nationwide have more National Merit Scholars. KU's reputation and the state-funded Margin of Excellence Program are given credit for attracting these outstanding students.

In its latest rankings of university libraries, the Association of Research Libraries placed the KU library system 19th among those in US public universities and 31st among 106 public and private universities in the US and Canada. The KU library system holds 2.8 million volumes.

The April 29 issue of U.S. News and World Report ranked the KU Medical Center 6th among medical schools whose main mission is primary care.

KU continues to break its enrollment record each fall. Last fall the opening day head count was 27,007 students overall and 23,406 students on the Lawrence campus (363 more in Lawrence than last year). KU is the largest of the Big Eight Conference Universities.

Some demographic information on KU students enrolled during the 1989-90 academic year was published in the Lawrence Journal World last fall. White Kansas women studying liberal arts constituted the largest group. The freshman class was the largest. Women outnumbered men by 627. Two-thirds of KU students were Kansas residents, and nearly half of all KU students were enrolled in the College of Liberal Arts and Sciences. Both minority and international student enrollment increased.

KU celebrated its 125th year beginning with the opening convocation on August 19, 1990. As part of the celebration, two lecture series were presented: the "Heritage Lecture Series", a review of important events in the first 125 years of KU's history; and "KU and the Challenges of the Future," a look back at forecasts made during KU's Centennial in 1966. The 125th year activities will culminate with the first "Alumni Weekend and Gala Celebration" during April 25-27, 1991.

The new $12 million Robert Dole Center for Human Development, located just SE of Malott Hall, was formally dedicated and opened last August 25.

Ground-breaking ceremonies for the new Lied Center for the Performing Arts were held last July. The $14.3 million facility, which will be located on West Campus near the intersection of 15th and Iowa Streets, is scheduled to open early in 1993.

Malott and Haworth Halls and the Computer Center were evacuated about noon then locked with chains overnight on September 10 as a result of a strong mercaptan odor that spread apparently through the sewer system connecting the three buildings. Over 500 faculty and staff were evacuated and 89 classes were canceled. The chemical identity of the odor-causing substance varied considerably depending upon whether one chose to believe the newspaper, the campus police, the fire department, the students, or (least of all) the chemists!

Professor F. Sherwood Rowland of the University of California at Irvine was awarded the honorary degree of Doctor of Science last June by Princeton University. He was also recently elected President of the AAAS. Professor Rowland was a faculty member in the KU Chemistry Department from 1956 to 1964. He is widely known for having initiated the concern about the effects of chlorofluorocarbons on the atmospheric ozone layer.

The first version of the well-known KU chant "Rock-Chalk-Jayhawk-KU" was conceived in the early 1880's by Professor E.H.S. Bailey, Professor of Chemistry at KU from 1883 - 1933. The chant was originally intended as a yell for the Science Club started by Professor Bailey.

The first Head of the chemistry department at KU was Francis Huntington Snow, who was appointed Professor of Mathematics and Natural Sciences in 1866, the year KU was founded. He was one of only 3 faculty members at KU at that time; later he became Chancellor.

Marion Barry, former Mayor of Washington, D.C., was a graduate student in chemistry at KU in the early 1960's.

KU's first Ph.D. in chemistry was awarded to Hamilton P. Cady in 1903. Dr. Cady remained at KU on the faculty until his death in 1943.

The first air liquefier west of the Mississippi was installed in the chemistry department at KU in 1902.

The 14th Midwest High Temperature and Solid State Chemistry Conference was held during June 10-12, 1991, at KU. This year's conference was a special tribute to Paul Gilles.

1921 TO 1925 AT KU
by John F. Eckel, Class of 1925

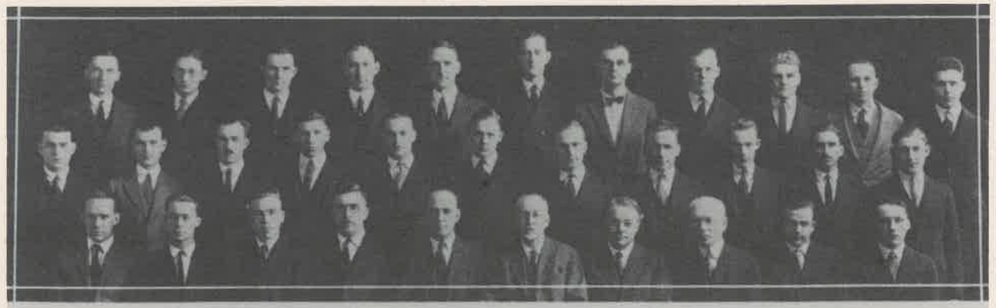
To recall four years at KU 70 years later, immediately presents a problem. What would be of most interest to more recent graduates and present students? The following items have been selected; costs, travel, registration, chemistry classes, chemistry faculty and commencement.

All costs (fees, books, travel, board, lodging and incidentals) averaged about $550 each year. My 200 mile trip between Douglass, KS and Lawrence required about seven hours on two Santa Fe trains with the train change at Florence. Usually on the trip to Lawrence, the second train stopped at Emporia for lunch at the Fred Harvey restaurant located in the station. Every "hole in the wall" near the station sold sandwiches and loudly hawked their wares with bells and horns. (Was this the start of the FAST FOOD industry?) My first trip was in September 1921. I landed in Lawrence late in the afternoon and found a man near the station who operated a horse drawn dray and for a fee delivered my new wardrobe trunk to the room Lyall Woodfin and I had rented sight unseen and what turned out to be located on a street with a trolley line. We soon adjusted to the street cars.

Computers had not yet been invented and registration was tedious and the lines were long. The first year chemistry class was held in a well-filled large lecture room and the lecturer Dr. H. P. Cady, then head of the chemistry department. He enjoyed the spectacular, including his liquid air lecture in which he dangerously placed some of the liquid in his mouth and blew "smoke". On another occasion he startled the students by igniting a mixture of hydrogen and oxygen in a flask under several boxes. I cannot remember hearing him speak of his discovery of helium in natural gas, nor of the fact that at one time the world's total supply of helium was in a flask on his desk. I was disappointed with my first semester grade of "C" in chemistry but consoled by my faculty advisor, John Bunn when he said, "why Eckel, that's a good grade in chemistry."

Other instructors of my classes in chemistry were: Ms. Elvira Weeks (quantitative analysis), Dr. R. Q. Brewster (organic chemistry) and Dr. H. W. Elsey (physical chemistry and electro-chemistry). With the exceptions of Ms. Weeks, Dr. G. W. Stratton and Dr. Elsey, the 1924 chemistry faculty can be identified in the accompanying photograph of the 1924 Kappa chapter of Alpha Chi Sigma. They are: W. C. Allen, E. H. S. Bailey, J. B. Barker, R. Q. Brewster, H. P. Cady, F. B. Dains, F. G. Moore, R. Taft and W. Werner. Of the entire faculty, I would vote for Dr. Brewster as the best teacher I had on the KU campus and also on the Carnegie Tech campus where I was later a graduate student. He had the ability to make organic chemistry easily understood.

Lastly, commencement must have been degrees granted that year. We donned our regalia and marched down to the stadium on a hot day, listened to speeches and then walked across the platform to receive a diploma. If it did not have the name of the holder, the hunt began and continued until every one had a diploma with his own name.

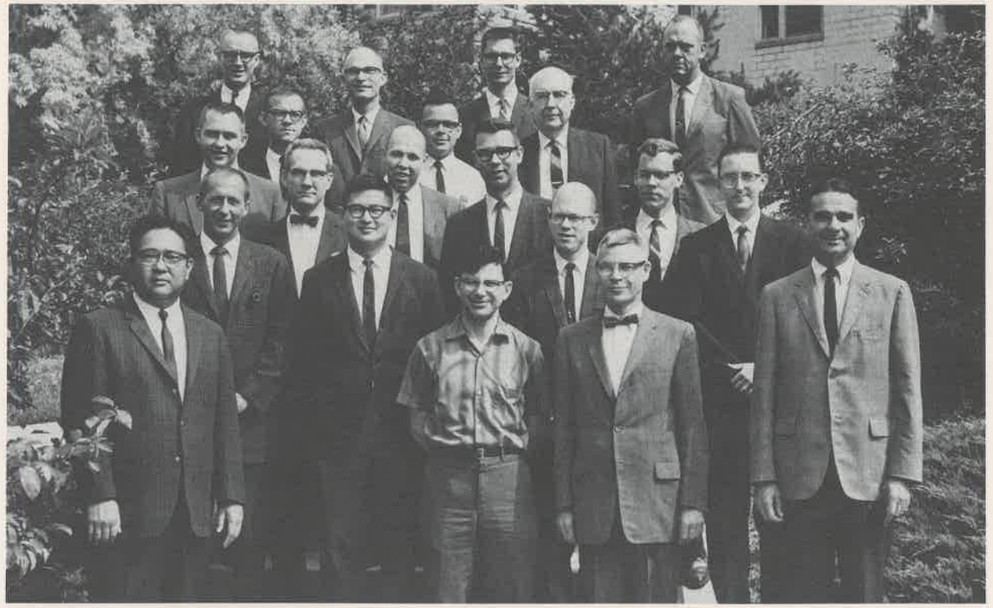


Tann Unangst Filson Brewster Werner Cambern Taft Johnson Wise Moore Sharp
Gamble Havenhill Hetler Borngesser Saylor Weber Joss Moyer Moore Greene Morgan
Bronson Boyle Howe Barker Allen Bailey Cady Dains Eckel Oakleaf

Kappa Chapter of Alpha Chi Sigma, 1924, including John Eckel. Eight members of the chemistry faculty also appear in the photograph.

Chemistry Teaching and Service Staff, 1944. *Front row* (left to right): Professors Brewster, Weeks, Dains, Taft, Davidson, Stratton. *Second row*: Secretary Teplitz, Professors Sisler, VanderWerf, Assistant Instructors Taft and Bean, Storekeeper King. *Third row*: Assistant Instructors Rundell, Stewart, Stoenner, Secretary Collins, Assistant Instructor Renich. *Fourth row*: Storekeeper Salisbury, Assistant Instructors Hoffman, Jirik, Lemmerman, Bechtle.

Chemistry Department, 1959. *Front row* (left to right): Faculty members: McEwen, Iwamoto, Gilles, Argersinger, Bearman, Kleinberg, Davidson, Griswold, Rowland, Adams.



Chemistry Faculty, 1967. From left to right: Iwamoto, Christoffersen, Adams, Carlson, Harmony, Gilles, Reynolds, B. Chu, Schowen, Middaugh, Bearman, Huyser, Burgstahler, Griswold, Kevan, Argersinger, Everett, Bricker, Landgrebe, Kleinberg.

Chemistry Faculty, 1977. From left to right, *1st row*: Kleinberg, Higuchi, Davidson (Emeritus), Landgrebe (Chairman), J.K. Lee (Associate Chairman), B. Lee. *2nd row*: Defreese, Rose (Director of Laboratories), Huyser, Hierl, Reynolds, Givens. *3rd row*: Burgstahler, Gilles, Harmony, Lata. *4th row*: Wylie, Griswold, Iwamoto, Everett, Schowen, Carlson, Mertes, Bricker. (Missing: Adams, Argersinger, Christoffersen)

Chemistry Faculty and Technical Staff, 1983. From left to right *front row*: P.M. Hierl, S.I. Chu, J. A. Landgrebe, J. Kleinberg, T. Higuchi; *second row*: W. J. Argersinger, Jr., P. W. Gilles, R. S. Givens, M. D. Harmony, B. Lee; *third row*: K. B. Schowen, R. L. Schowen, C. J. Decedue (Enzyme Lab), C. Judson (Mass Spectrometer Lab), C. A. Reynolds, J. D. Defreese, R. N. Adams; *fourth row*: G. R. Daigneault, C. E. Bricker, G. M. Maggiora, A. J. Lata, R. G. Carlson, K. Ratzlaff (Instrument Design Lab), E. S. Huyser, A. W. Burgstahler, G. W. Everett, R. T. Iwamoto.

NEWS OF ALUMNI

1920-1929

JOHN F. ECKEL (A.B. 1925, D.Sc. Carnegie Mellon, 1932)
is Professor Emeritus at Virginia Polytechnical Institute. He recently completed an Historic Event booklet for the Friend Family Association. It covers the Comanche raid on the John S. Friend home in Llano County, Texas, February 5, 1868. Three women and two infants were murdered, two children (including an uncle of John's) were captured, and John's grandmother was shot with an arrow, scalped and left for dead. She recovered and gave birth to her first child 24 days later. After she was able to travel, John's grandfather drove nearly 1,000 head of cattle north to El Dorado, Kansas, where he traded 160 head for 160 acres with a log cabin. John is now working on a pictorial family history. He has photographs of six generations.

1930-1939

IRWIN B. DOUGLASS (Ph.D. 1932)
was a graduate student at KU during 1928-1932 working under the direction of Professor Frank B. Dains. Because of the onset of the Great Depression, Irwin was very fortunate not only to find employment in 1932 at North Dakota Agricultural College but also to have three eager graduate students assigned to him! Recently, Irwin wrote an autobiography entitled "A Chemical Odyssey" that traces his long and interesting life as a chemist, beginning at KU then at NDAC, then at Northern Montana College (where he was also basketball coach and during the summers he was a Ranger-Naturalist at Yellowstone), a postdoctoral position at Yale, and finally at the University of Maine in 1940, where he was department head. Irwin retired in 1972, but continued research and consulting until 1977 when he and his wife moved to Williston, VT, where they have a house overlooking South Burlington, Lake Champlain, and the Adirondack Mountains.

1940-1949

ARTHUR J. ARCHUNG (Chem. Eng. 1949)
is Vice-President of Manufacturing at Sofix Corporation, a joint venture of two Japanese companies, and is building a grass roots colorformer plant in Chattanooga, TN.

JAMES EARL BARNEY (B.S. 1946, Ph.D. 1950)
is Manager of Toxicology Services at CIBA-GEIGY Corp. He reports that the most memorable event in his life in 1990 was the birth of Ryan Alan Barney, his first grandchild, in Susanville, CA on November 9. Undoubtedly his most memorable event in 1991 will be his retirement! After 41 years in research and development with Standard Oil (Indiana), Spencer Chemical, Midwest Research Institute, Stauffer Chemical, Cheesebrough-Ponds, ICI Americas, and finally CIBA-GEIGY, he will reach 65 in September and will "hang it up"! He and Pat will probably move to the west coast in order to be closer to their children (and grandson). Perhaps they will be able to stop in Lawrence on their way west and look up old friends.

BETTY AUSTIN HENSLEY (Mrs. Cline D. Hensley; B.A. 1944)
is a flute teacher, performer, and researcher of flute instruments around the world and backward in time to 1200 B.C. Her "Flutes of the World" collection is one of the best. As a touring performer for the Kansas Arts Commission, she demonstrates how to play flutes made of wood, bone, seed pods, glass, jade, etc., and of all sizes and shapes. Her knowledge of the proper way to play obsolete instruments involves research into religious texts, travelers' tales, photographs, and tomb paintings. Betty has just completed a book, Thurlow Lieurance Indian Flutes, and performed at the dedication of his collection at the Wichita State University last May. Betty is a niece of Dr. H. P. Cady, Professor of Chemistry at KU from 1900-1943.

HARVEY S. SADOW (M.S. 1949)
continued his education after leaving KU at the University of Connecticut, where he received a Ph.D. degree and took subsequent specialized training in clinical pharmacology. During World War II and also the Korean War, he served as a commissioned officer. During 1953-56 he was Associate Director of Research at Lakeside Laboratories in Milwaukee, then he joined the U.S. Vitamin Corporation and served in various capacities including Senior Vice President for Scientific Affairs of the U.S. V. Revlon Health Care Division. In 1971 he was appointed President and Chief Executive Officer and Board Member of Boehringer Ingelheim Ltd. in Elmsford, N.Y., a position he held until his retirement in 1988. Harvey also served as Chairman or member of the Board of numerous companies and of state and community organizations, and he has received several awards for outstanding leadership and service. He is currently President of the Connecticut Academy of Science and Engineering.

DELOSS E. WINKLER (A.B. 1936; M.A. 1939; Ph.D. 1941)
retired from Shell Development Company, Emeryville, California, in 1970 and from Beckman

Instruments, Palo Alto, California, in 1979. He continued as a consultant for Beckman Instruments for several years. He and his wife, Evangeline (Clark), former secretary to the Dean of the Graduate School, are life members of the K.U. Alumni Association and have been members of the Chancellor's Club for eight years. They are presently active in Campaign Kansas. They will celebrate their 50th wedding anniversary this year by traveling to Australia for sightseeing and to visit friends and relatives.

1950-1959

R. LYNN COBB (Ph.D. 1955)
is now enjoying his retirement home near Austin, TX, after 32 years in research at Phillips Petroleum (in Oklahoma) and 3 more years at Union Carbide (in West Virginia - silicone surfactants).

RICHARD A. GOLDSBY (B.A. 1957)
is currently at Amherst College where he holds the title of Distinguished University Professor of Veterinary and Animal Science. After leaving KU, Richard earned his Ph.D. in Chemistry at the University of California at Berkeley. He was employed for several years at DuPont prior to joining the faculty of the biology department at Yale (1964-1972). Then, he was appointed Professor of Chemistry at the University of Maryland until 1982 when he moved to Amherst College. In 1989 he was named Distinguished Faculty Lecturer and Chancellor's Medalist and was co-author of a book Thinking AIDS. Richard remembers Drs. Kleinberg, Davidson, Argersinger, and Reynolds at KU and has particularly vivid memories of Paul Gilles's rigorous course in Physical Chemistry.

JOHN L. MARGRAVE (Ph.D. 1951)
led a team of researchers who recently discovered a new way to make diamond film by heating halogen gases with methane. The method is simpler, faster, and cheaper than current methods and has great potential for making protective coatings for optical and medical devices and for development of new, super-hard tools and faster computers. John is E.D. Butcher Professor of Chemistry at Rice University and Director of the Materials Science Research Center in Houston.

KENNETH L. MARSI (Ph.D. 1955)
was elected for his fifth term as a department chair of Chemistry and Biochemistry at California State University - Long Beach. When his present term is completed, he will have served 15 years as chairman! His department is large with about 250 majors and about 40 graduate students, and they graduate on the order of 60 majors annually. The university enrollment is approximately 34,000.

SHIRLEY (TOWNSEND) WRINKLE (B.A. 1953)
has been teaching chemistry at Reidland High School in Paducah, KY, since 1972. She received the 1990 Presidential Award for Excellence in Science and Mathematics teaching, and as a result Shirley and her husband spent a week in Washington, D.C., as guests of the President. Also, her school received $7,500 to spend for science.

1960-1969

W. H. BRECKENRIDGE (B.S. 1963)
is Professor of Chemistry at the University of Utah. He was honored this year as the first recipient of the recently endowed Dr. Robert W. Parry Teaching Award in Chemistry at the University of Utah ($1,000 prize). He reports that he spent the $1,000 in a quite shameless fashion, tooling around the south of France in a fancy, rented Peugeot on a (well-deserved) two-week vacation. His last stop was a weekend visit with his French colleague, Dr. Benoit Soep, who has a beautiful villa in the Baretous Valley of the Pyrenees.

R. M. KELLOGG (Ph.D. 1965)
has been in The Netherlands since leaving KU. Currently he is Professor of Organic Chemistry and Department Head at the University of Groningen. He is also cofounder of a small company that carries out contract research.

GREGORY L. LAUVER (B.A. 1969)
attended Northwestern University Medical School, graduating in 1973, and did a residency in Internal Medicine at the Mayo Clinic, and held a research fellowship in Pulmonary Diseases at the University of Arizona. Since 1978, he has been in a private practice of pulmonary disease in the Mesa-Tempe area of Arizona, a contiguous suburb of Phoenix. Greg has served as Chairman of the Department of Medicine, Director of Critical Care, and Chairman of Respiratory Care Services at Valley Lutheran Hospital; Director of Respiratory Care at Mesa Lutheran Hospital; and Chief of the Pulmonary Section at Desert Samaritan Hospital. He currently serves as Director of Respiratory Therapy Education, also at Desert Samaritan Hospital. He is Board certified in Internal Medicine and Pulmonary Diseases. He has been active with the American College of Chest Physicians, serving as Vice Chairman of the Section of Bronchoesophogology, 1983-85, and Vice Chairman of the Section of the Clinical Pulmonary Medicine, 1986-90. Greg is married to Frances (Peg) Lamont Lauver of Aberdeen, South Dakota, and has two daughters,

Laura, age 12, and Lindsey, age 8.

RONALD MATHIS (Ph.D. 1965)
currently worldwide Licensing Director of Engineering and Specialty Resins for Phillips Petroleum Company in Bartlesville, OK, was recently honored by Phillips with a special award in recognition of the issuance of his fiftieth U.S. patent. During his 26 year career in the area of synthetic polymers he has been an invited contributor to several plastics handbooks and encyclopedias as well as making numerous technical presentations throughout the world and authoring technical publications in the areas of high performance plastics, polymer blends, and plastics for packaging and medical applications. His oldest son, Kyle, received a B.ChE. degree from K.U. in May 1990 and is employed as a process engineer at Phillips high density polyethylene plant in Pasadena, TX.

DUANE E. THURMAN (Ph.D. 1967)
is Vice President for Business Development and Strategic Planning at Smith Kline Beecham, Animal Health, located in West Chester, PA.

1970-1979

BENJAMIN S. BRANN, IV (B.A. 1976)
received a degree in Medicine in 1980 from the University of Alabama and then completed a residency in Pediatrics at Oklahoma Children's Memorial Hospital. He subsequently completed a fellowship in Neonatology at Brown University in 1985. Currently he is an Assistant Professor of Pediatrics and Obstetrics at the University of New Mexico School of Medicine in Albuquerque. He is actively involved both in the clinical care of newborn infants and research. His research involves processing of ultrasound images obtained in preterm infants, and bovine endothelial cell cultures, for which he received research funding. In 1990, several of his original research articles appeared in the Journal of Ultrasound in Medicine and the Journal of Pediatrics. He was also nominated and voted into the Society of Pediatric Research.

JOAN (HARMON-ASHLEY) HUBER (Ph.D. 1973)
received a M.B.A. degree in 1987 and now works as a business consultant in Lawrence.

PETER A. HUMPHREY (B.A. 1978)
is an Assistant Professor of Pathology at Duke University Medical Center. He holds both an M.D. and a Ph.D degree. After completing a residency in Pathology at Duke, Peter joined the Faculty in 1988. He currently practices as a Surgical Pathologist at Duke Hospital and is in a large Neuro-oncology research program, where he directs a laboratory with a focus on growth factors and proto-oncogenes in brain tumors. Peter and his wife Kay have two children: Tom, 5, and Jennifer, 1.

RICHARD KING (Ph.D. 1972)
is now manager of the Analytical Quality Support group for the Chemicals Division of Procter and Gamble. He is responsible for overseeing analytical laboratory operations at several plants, and he is traveling more than in recent years. Richard is still active with the Boy Scouts; he has gone on some of the monthly campouts and he spent a week at summer camp last June.

ROGER A MUNSINGER (B.A. 1970)
is currently with Brinkman Instruments as Senior Marketing/Sales Support Manager for a number of analytical and size-reduction instruments sold by Brinkman. Roger currently resides on Long Island, New York and has been with Brinkman Instruments for twelve years.

DAN QUINN (Ph.D. 1978)
has just finished the term of an RCDA from NIH (1985-90) and returned to full-time teaching at the University of Iowa where he is an Associate Professor of Chemistry. Research continues in his group on cholinesterases and lipases and is complemented by professional activities (ACS Books Advisory Panel, 1988-91; Chair of the 10th Midwest Enzyme Chemistry Conference, 1990; Co-editor of the 3rd International Meeting on Cholinesterases, 1991; Chair of the Organic and Biological Chemistry Section of the Iowa Academy of Sciences, 1991). His wife Andrea earned an M.S. in Business with a specialty in Accounting from the University of Iowa in 1990, and has set out to secure the family fortune.

NARENDRA (NARU) PATEL (M.S. 1970)
was promoted to Director of Southwest Process Technology of Olin Corporation. The Technology Center, located in Lake Charles, Louisiana, employs about 50 people and is engaged primarily in process development of isocyanate products.

MARK L. PROCHASKA (B.A. 1979, M.D. 1984)
completed a psychiatric residency at the Karl Menninger School of Psychiatry in 1988 after attending medical school at the University of Kansas. He is currently engaged in the private practice of general psychiatry in Prairie Village, Kansas, and in Blue Springs, Missouri. He is also an attending psychiatrist on the staff of Research Psychiatric Center and Research Medical Center.

JOHN P. SWANN (B.A. 1979)
joined the Food and Drug Administration in December 1989 as FDA Historian. The previous year he published Academic Scientists and the Pharmaceutical Industry: Cooperative Research in Twentieth-Century America (Johns Hopkins University Press).

MASAHIKO TAMAKI (Ph.D. 1974)
is currently working in Japan as a Technical Manager for Dow Chemical in their Corporate Office of Technology.

MORGAN TAMSKY (Ph.D. 1970)
is Technical Director at the 3M Disposable Products Division in St. Paul, Minnesota.

K.S. VENKATASUBBAN (Ph.D. 1975)
has recently been chosen as one of the three best teachers at the University of North Florida.

1980-1989

KEITH B. ALLEN (B.A. 1982; M.D. 1986)
is Chief Resident in general surgery at Emory University School of Medicine, Atlanta, GA. He will begin a cardiothoracic surgery fellowship in Chicago in 1991. Keith was recently named the Alfred E. Davis Distinguished Fellow in Surgical Anatomy and Technique for 1990-1991.

GREG ANDERSON (Ph.D. 1980)
was recently transferred from the business center of Texaco Additive Company in Houston to Texaco's R & D facility in Beacon, NY, as Group Leader of the Additive Synthesis Group. Greg says "January is not the best time of year for a move, particularly from south to north, but so far we've survived it."

MARK BOLING (B.A. 1980)
took over as Medical Director for Psychiatric Services at Providence-St. Margaret's Health Center, Kansas City, KS in November, 1989. The Psychiatric Program now offers services to adults, adolescents, and children. In addition to a busy private practice, he likes to windsurf and is just now learning golf. He is married and has an eleven year old daughter.

JONG-IN CHOE (Ph.D. 1981)
has been promoted to the rank of Professor of Chemistry at Chung-Ang University in Seoul, Korea.

JOHN (MIKE) FERGUSON (B.S. 1987)
was awarded a Teaching Excellence Award at Iowa State University, where he has just completed his fourth year of graduate work in organic chemistry.

GERALD K. FLEER (B.A. 1985)
is currently working in Chicago at St. Joseph's Hospital. He is in his second year of training in Obstetrics and Gynecology.

DAVID HEITMEYER (B.S. 1989)
was married to Cindy Panowicz (a fellow Jayhawk, B.S. Journalism 1989) on June 9, 1990 in Northville, Michigan. David is currently a second-year graduate student in the Department of Chemistry at Harvard University, working for Professor Jeremy Knowles.
CHARLES A. HOLT (B.A. 1980 Human Biology)
is currently a family practice physician in the U.S. Army and was promoted to the rank of Major in August, 1990. He is repaying his Army medical scholarship from the Kirksville College of Osteopathic Medicine. He hopes that he will not be opening a new practice in Saudi Arabia anytime soon!

HOSSAIN JAHANSOUZ (M.S. 1984, Ph.D. 1989)
has recently accepted a position as Senior Research Chemist at Merck Sharp & Dohme in West Point, PA. He will officially join MSD on February 15, 1991. Hossain has been in Dr. V. Stella's lab at KU as a post doctoral Research Associate since July 1, 1989.

ALAN JIRCITANO (Ph.D. 1982)
received tenure at Penn State Erie - The Behrend College in June, 1990, and since last fall he has been Chemistry Chairperson in the Department of Science and Technology. Alan and his wife Karen have two children: Daniel, 9 years old, and Jacqueline, 5 years old.

KEVIN KELLY (Ph.D. 1980)
has joined Analytical Bio-Chemistry Laboratories in Columbia, Missouri, as Applications Research Chemist in research and development. His efforts will be directed mostly toward new laboratory instrumentation for sample preparation and enrichment. Kevin and his wife, Paula (B.S. 1979) are happy to be back in the Midwest.

ROBERTA S. KING (B.S. 1989)
is in her second year of the Ph.D. program in Medicinal and Natural Products Chemistry at the University of Iowa. In August 1990 Roberta was awarded a Biocatalysis Predoctoral Research Fellowship by the Center for Biocatalysis and Bioprocessing at the University of Iowa.

ANDY LOTTES (Ph.D. 1989)
has accepted a position with the 3M Company in St. Paul, Minnesota. He will be completing nearly two years of postdoctoral experience with Professor Paul Gassman at the University of Minnesota prior to starting his new job on July 1. Upon completing his Ph.D. at KU, working under the direction of Professor Landgrebe, Andy received the Dorothy Haglund Prize awarded by the Graduate School for originality, significance, and high quality of his dissertation.

PAULA J. MARTIN (Ph.D. 1986)
is the chairman of the Chemistry Department at Dickinson State University in Dickinson, North Dakota. She regularly performs chemistry magic shows for local elementary schools (inspired by Dr. Bricker). She is also involved with science workshops for the purpose of teacher certification updates.

LESLIE J. MAY (B.A. 1984)
obtained her Ph.D. in analytical chemistry with Prof. Mark Wightman at Indiana University in 1988. Her speciality was electroanalytical chemistry, specifically application of microelectrodes to measurements of stimulated dopamine release in rat brain. Although she has retained her own name, Leslie married Joseph E. Pelati in 1986. He was a graduate student in inorganic chemistry and received his Ph.D. at about the same time as Leslie. They were both fortunate enough to find employment at Dow Chemical's Texas Operations. Joe is involved in hydrocarbons research and Leslie's speciality is process analytical.

CARLA B. DITTMAN MCBAIN (M.S. 1984)
received a Ph.D. in Polymer Science from the University of Akron in 1987 and joined the research center of ICI-Glidden in 1988. Carla is a colloid specialist and was recently promoted to Sr. Chemist. Carla was chosen as a visiting scientist to ICI Coatings Research in Slough, England, in May of 1990.

DOUGLAS S. MCBAIN (Ph.D. 1983)
joined GenCorp, Corporate Research Division, in Akron, Ohio, as Sr. Research Chemist after five years with PPG Chemicals. Doug has responsibility for the development of resins for use in automotive, aerospace, and related polymer products.

THOMAS J. MUNYON (B.S. 1980)
is currently a Public Affairs Officer in the Naval Air Reserve at Jacksonville, Florida. He recently completed the last of six education courses required by Florida for secondary/middle school certification in teaching Chemistry. He will begin his student teaching this fall or in January 1991 (After he retires from the Navy). He says "I feel I'll do more for national defense (by getting more American high school students on the right track where science is concerned) then I did during my 20 years in the Navy."

KRISTINA PAQUETTE (B.A. Chemistry, B.A. Slavic Languages and Literature, 1983)
completed her first year as a graduate student at the University of Maryland in May 1990 and expects to finish a Ph.D. in analytical chemistry in May 1993. She worked as an analyst for the federal government for 5 years before deciding to return to the field of chemistry. Kris is working with Dr. Janice Ruett-Rolbey at Maryland on studying the diffusion of various molecules across nickel (III) surfaces by time-resolved infrared spectroscopy and other techniques.

JACQUELINE BRALY PAYNE (B.A. 1984)
is currently a Research and Development Engineer working with advanced composites for aerospace applications at Brunswick Defense, Marion, VA. She has published a paper, "Determining Cure Cycles for Thermosetting Epoxy Prepregs", for the Society of Manufacturing Engineers. Jaci and her husband Greg, have one daughter, Jessie, age 2.

AMY SIMPSON TAIT (B.A. 1980)
graduated from KU Medical School in 1986 and completed her residency in Pediatrics at Riley Children's Hospital/Indiana University Hospital in 1989. Amy and her husband Layne Tait (Also a KU chemistry alumnus and an M.D.) are practicing in Fort Smith, Arkansas. They have a 2 year old son and a 6 month old daughter.

GREG VOTH (B.S. 1981)
is currently Assistant Professor of Chemistry at the University of Pennsylvania. Last year he was awarded a David and Lucile Packard Fellowship in Science and Engineering, one of the twelve junior scientists and engineers to receive the $500,000 Fellowship. Greg was also named one of the ten Camille and Henry Dreyfus Foundation's New Faculty Awardees for 1989 and, he was awarded a Lilly Foundation Teaching Fellowship to develop computer projects for the enhancement of freshman chemistry classes. In addition, he was awarded a Presidential Young Investigator Award from NSF. On the personal side his wife Karen gave birth to their first child, Michael, on November 16, 1990.

1990-1991

PHIL ATHEY (Ph.D. 1990)
began work with Dow Chemical in Texas on June 1st. He had just finished a year of post-doctoral research at Dartmouth with Professor Davie Lemal. Phil and Valerie have also added a son, Mitchell, to their family

during their furlough in Hanover.

KEITH COMBRINK (Ph.D. 1990)
has accepted a position at Bristol-Myers Squibb in Wallingford, CT, in the medicinal chemistry department. He plans to begin around the first of September.

DEATHS

W. MACK BARLOW (B.A. 1937, M.S. 1947)
died last May of heart failure. During his professional lifetime, Mack held many positions as a chemist and even returned to school to earn a second master's degree (biochemistry) at Kansas State University in 1970. He retired in 1985. Mack is perhaps best known for his long and devoted service to Alpha Chi Sigma, beginning with his initiation at KU in 1936 and spanning six decades. In 1980 he was elected as an honorary member of the Order of Altotus and also named Grand Historian.

CLYDE BECKER (B.A. 1937)
passed away on September 22, 1990. He is survived by his wife, Isabelle, who lives in Fort Worth, Texas.

GENE F. MILLER (B.A. 1971)
died last July in California as a result of a boating accident. Gene lived in Lawrence from 1951 until 1973 and worked at the DuPont Tecumseh Plant before moving to California.

R. CHESTER ROBERTS (M.A. 1914)
died last December, only two months before his 100th birthday. Prior to attending KU, "Chet" obtained a B.S. degree in chemistry from Ottawa University. After receiving his M.A. at KU Chet taught for several years at Franklin College in Indiana, then entered graduate school at Yale, where he completed a Ph.D. in organic chemistry in 1921. He returned to Franklin College until 1928 when he became Professor of Chemistry at Colgate University. Chet remained at Colgate until his retirement in 1959. He was awarded an honorary D.Sc. by Ottawa University in 1957.

VIC VITULLO was a postdoctoral associate with R. L. Schowen in the late 1960's to early 1970's. He died near the end of March from complications arising from multiple sclerosis.

NEWS OF FACULTY

Analytical Chemists

DR. RALPH ADAMS, in addition to pursuing his research with his accustomed vigor, has been a leader in efforts to solve the financial crisis in science libraries (affecting not only KU but every American university) caused by very sharp rises in journal subscription prices.

DR. CRAIG LUNTE and his group continue its efforts to elucidate the electrochemical pathways of drug metabolism. Projects have begun on several new compounds which again confirm that the straightforward is seldom so. However Craig says "We are also continuously being reminded the more difficult the problem the more fun it is to find the solution. We have had great success on the *in-vivo* microdialysis sampling project. We are in the happy situation of having more good ideas on things to do than time to do them." The Second Annual Lunte Group Camping Extravaganza to Colorado occurred without too many casualties and plans are already in the works for the next trip.

DR. TED KUWANA was reappointed by the Governor for another three year term on the Board of Directors of the Kansas Technology Enterprise Corporation (KTEC). KTEC is a not-for-profit subsidiary owned by the State, whose mission of economic development is implemented by technology initiatives such as funding centers of excellence (e.g., Higuchi Biosciences Center [HBC] and CBAR at KU) and applied research grants linking industry to university research. Ted is actively participating in a cooperative project between the Regents insititutions and KTEC to become a participant in the NSF Experimental Program to Stimulate Competitive Research. This program is designed to stimulate scientific and technological capacity on a state-wide basis.

Ted also serves on several other corporate boards including Oread Labs of Lawrence (commercializes HBC findings), YSI, Inc. of Yellow Springs, Ohio (instrument company), Cypress Systems, Inc., of Lawrence (electrochemical instruments), and Novatec of Lenexa (clinical analysis).

A reunion of the college teachers who had participated during the last four summers in the NSF sponsored MACRO-ROA program for research in bioanalytical chemistry at KU/CBAR was held in November. The goal of the program is to stimulate the college teachers, and ultimately, to carry their enthusiasm back to the classroom so that more students will consider a career in science. Barbara Schowen coordinates this program with Ted.

Together with George Wilson, a program was established for student exchange with Changchun Institute of Science, Academy of Science, Changchun

PRC. Changchun has one of the largest research groups in electroanalytical and bioanalytical chemistry in China. Ted is serving as one of the three foreign advisors to the Changchun Academy and will visit there in October 1991.

Ted and Rich Givens will be representing KU at the International Congress of Analytical Chemistry (ICAS) this August in Japan. Ted will be one of four foreign guests being named "honorary member" to the Japan Society of Analytical Chemistry, a once in every ten years event.

DR. GEORGE WILSON has worked actively this spring with Ted Kuwana and Craig Lunte to revive the Instrumental Analysis course which has been "dormant" for more than five years. This effort has been aided by the award of an NSF grant to develop flow injection analysis experiments and the donation by Hewlett-Packard of a fully computerized HPLC system.

George's research group of 17 undergraduates, graduate students and post-docs keeps him busy. An important research milestone this year was the development, in collaboration with 3 research groups in France, of a portable system which continuously monitors subcutaneous glucose concentrations and displays the values in real time. This system has been demonstrated to work in rats and dogs and will shortly undergo clinical trials as a therapeutic device for diabetes.

Extramural activities include serving on the Scientific Board which is responsible for development of the competitive events for the 24th International Chemistry Olympiad to be held in Pittsburgh on 1992. George was elected co-chairman of the Bioelectrochemistry Division of the International Society of Electrochemistry and continues to serve as Secretary of the Electrochemistry Commission of IUPAC. In addition to organizing the Third International Bioanalytical Workshop in Lawrence this May he will serve as Vice-Chairman of this year's Gordon Conference on Bioanalytical Sensors.

General Chemists

MR. ALFRED LATA is still primarily involved with the supervision of the laboratory portion of the general chemistry courses: 45 sections of CHEM 184 in the fall, and 14 sections in the spring; along with 28 sections of CHEM 188 in the spring and 3 during summer school. As many as 25 teaching assistants are involved in these courses during any one semester.

He pursues interests in the use of computers for instruction in chemistry and is currently Chairman of the Committee on Computers in Chemical Education, of the Division of Chemical Education of the ACS. Recently he served as a member of the Evaluation Panel for the EDUCOM-NCRIPTAL Awards to select outstanding instructional software.

He still sings at various events around town and occasionally dons grease paint and hides out hirsutely: most recently as Pellinore in a production of Camelot.

His daughter, Jamie, graduated this April from Phillips University in Enid, Oklahoma, is getting married this June, and will begin the graduate program in Social Welfare at KU this fall.

Inorganic Chemists

DR. DARYLE BUSCH returned to teaching this past calendar year after an unlikely 1.5 year hiatus. In the spring semester, 1990, he shared with Joe Heppert both the undergraduate major course in Inorganic Chemistry and a graduate special-topics course in Mechanisms and Homogeneous Catalysis and then taught Physical Methods to graduate students in the fall semester.

While transition metal dioxygen complexes and biomimics of heme proteins that bind dioxygen remain the central focus of the research program of the Busch Group, Daryle has been investigating the very general relationships that his experiments illustrate in the broad context of the organization of molecular species. New research activities that may emerge from this involve switching on and switching off the functions or the reactions of molecules, new cooperative phenomena, facile interchange of modular components in highly organized molecular systems with a concommitant alteration in the function of the system, and new kinds of materials.

In May of 1991, Daryle's former students and postdocs held the third quinquenniel Busch Reunion Symposium as part of the scheduled program of the combined Central and Great Lakes Regional Meeting. He presently serves as Secretary-Treasurer of Inorganic Synthesis, Inc., and as Chairman of the KU local ACS Section. Daryle has agreed to serve as Chair of the 19th International Symposium on Macrocyclic Chemistry, to be held at KU June 14-17, 1994. He has just accepted a three-year term on the review board of the Chemistry Division of Oakridge National Laboratory and he will participate in the First Hanford Laboratory Workshop on Separations Science (July, 1991), which is part of the program to clean up the Hanford nuclear production site. Last year he served on the review group for the Chemistry Division of the Brookhaven National Laboratory. Daryle is consultant to Monsanto, 3M, DuPont, and Chemical Abstracts Service.

Last summer a family room and a work room were added to the *Jeri and Daryle Recreational Facility* a few miles West of Lawrence. The work room has facilitated the expansion of the *Wakarusa Brewery*, which proudly makes use of the delightfully translucent Wakarusa River water.

DR. GROVER EVERETT devoted most of his time this year to teaching both semesters of the general chemistry sequence, Chem 184 and 188. Over 900 students were enrolled in the fall. However, he still maintains a modest research effort with supramolecular complexes. His daughter Susan graduated in May with a M.F.A. from the School of the Art Institute in Chicago. His son Mark graduated with a B.S. in Astronomy at KU and plans to attend graduate school next year at Ohio State.

Grover Everett, Rey Iwamoto, and Angleo Vedani prepare to depart for a training ride. Each rides annually in the Octogina 80-mile Bike Tour.

DR. JOE HEPPERT'S research interests still focus on the application of chiral organometallic complexes to both asymmetric catalysis and polymerization processes. Over the past year, research in polymerization catalysis has centered around the ring opening metathesis polymerization (ROMP) of cyclic olefins. Two students, Martha Morton and Nancy Eilerts have observed some unique ROMP activity at dinuclear tantalum and tungsten complexes. Steve Dietz is carrying on studies of classical tungsten (VI) complexes that are precursors to mononuclear polymerization catalysts. Mike Milligan is studying asymmetric chromium arene complexes that will be useful as bidentate ligands for hydrogenation catalysis. Beth Thomas-Miller is completing her Ph.D. thesis, and Dr. Heppert's first two Ph.D. students Tim Boyle and Mark Morgenstern, who received their degrees this past fall, have postdoctoral positions at U.C.-Irvine and Center for Solar Energy Research, respectively.

Joe and his wife, Kathy, who is a chemist at INTER$_X$ corporation on West Campus, celebrated the birth of their second daughter, Joanne Arlene, last spring. Their plans for the coming year are to celebrate a successful end to the tenure process and to move into a larger house they recently bought.

DR. KRISTEN MERTES has spent this academic year on sabbatical leave in sunny California at Caltech. There she has been working in the protein crystallography laboratory of Professor Doug Rees. In December, tiring of the constant sun, she travelled to London to present a talk at the Royal Society's Inorganic Reaction Mechanisms Christmas Meeting.

She and Daryle Busch are planning to host the 19th International Symposium on Macrocyclic Chemistry at KU on June 14-17, 1994. Macrocyclic chemists should mark their calendars.

Pictured above is Kristen Mertes during a less formal moment between drag races last summer in Manhattan, Kansas.

Organic Chemists

DR. ALBERT BURGSTAHLER is continuing his efforts to develop new, low-cost, hands-on experiments for high school and college general chemistry classes. His youngest son, David, completed his B.S. in aerospace engineering at KU with honors last December and is now employed in systems analysis engineering with a large firm on the east coast. The Burgstahler's sixth grandchild, Anthony, was born January 6 to their second daughter Janet Anderson who lives in Wichita. They now have 3 grandsons and 3 granddaughters.

DR. BOB CARLSON presented invited papers at HPLC '90 in Boston and the Pittsburgh Conference in Chicago. The papers described recent work on the use of diaryl oxazoles as tagging reagents in bioanalysis. His research group is continuing its efforts toward the development of new reagents for bioanalysis and chemiluminescence.

DR. TOM ENGLER continues to explore the development of methodology for organic synthesis. Under current investigation are new cycloaddition reactions and mechanisms and new methods for asymmetric synthesis. The latter program involves the design and study of chiral transition metal complexes as catalysts for asymmetric cycloaddition reactions and other carbon-carbon bond forming processes. These catalysts are of interest due to their synthetic utility and their value in the study of the mechanisms of intermolecular chirality transfer. During the last two semesters, Tom was introduced to the joys of lecturing in Hoch Auditorium as the instructor for CHEM 624/626. When asked for further comment, he declined on the advice of the censor for this newsletter. On the personal side, Tom and Rachel Lottes were married on June 1. Part of this summer will be spent in Hawaii enjoying their newest hobby, scuba diving.

DR. RICHARD GIVENS has completed his third year as the chair of chemistry and his second year as Director of the Center for Bioanalytical Research. He is relinquishing the latter position at the end of the spring semester, having served as either director or associate director since its formation in 1983. Rich intends to remain active in the Center with his work on chemiluminescence and developing unusual reagents for trace analysis.

Rich's research group has continued its work on the photochemistry of phosphate esters, having recently developed a new photoprotecting group of phosphates. The first derivative from the research effort was a caged cyclic adenosine monophosphate (c-AMP) which can release c-AMP upon irradiation with a time constant of ten nanoseconds. Phil Athey, the researcher responsible for this breakthrough, will begin his career with Dow in the early summer after a year as a postdoc with Dave Lamal at Dartmouth. Romi Singh completed his Ph.D. and is off to a postdoctoral position at the University of Washington.

Rich's daughter Beth graduates from KU this year and will marry later this summer. These events will be sandwiched between trips that he and Sue will take to Belgium for a plenary lecture on Chemiluminescence and a later trip to Japan where he will present a lecture on the mechanism of the peroxyoxalate chemiluminescence reaction.

DR. EARL S. HUYSER is continuing his consulting with the Dow Chemical Company in Midland, Michigan, Plaquemine, Louisiana, Freeport, Texas, and occasionally Tulsa, Oklahoma. The most pleasant part of this endeavor is having the opportunity of maintaining both professional and personal relationships with KU graduates who are part of the Dow research staff.

DR. JOHN A. (JACK) LANDGREBE is very heavily involved in the 4th edition of his undergraduate organic laboratory textbook scheduled to be published by Brooks/Cole in 1992. He recently received an automatic nmr sample changer purchased from an NSF Instrument and Laboratory Improvement grant and hopes to put it to good use in the organic laboratory program later in the spring or summer of 1991. This attachment to the QE-300 will allow students to obtain high-field nmr spectra on individual samples they have prepared and on unknowns they are expected to solve. In addition, he will be helping manage funds obtained from NSF for the remodeling and improvements of research facilities in Malott Hall.

DR. BARBARA SCHOWEN taught Chem 184 this spring for the first time and has an even greater admiration for the splendid work done in the past by Clark Bricker, Bert Reynolds, Grover Everett and others. The class had about 330 students.

Barbara and Marlin Harmony have received another three-year's funding from NSF for the Department's REU program for summer undergraduate research. She was a co-organizer of an NSF Workshop on Research in the Undergraduate Curriculum last fall at which 49 of the 51 current REU Site Directors were in attendance.

Dick and Barbara have moved south of Lawrence to a place with 10 acres of land, a barn, and a tractor. (Hard to believe?) Their daughters are both in NYC; Susana is studying physical chemistry in grad

school at Columbia and Sarah is a junior at NYU. Both Dick and Barbara were inducted into the Golden Key national society this year.

DR. RICHARD SCHOWEN has a good crop of winter wheat this spring on his farm south of town, or so he is told by those who have been outside the house. He and Barbara attended meetings in Germany last October, near Berlin (on the novel enzyme "rotamase") and near Ulm (on thiamin biochemistry; Dick lectured on pyruvate decarboxylase). In April, Dick gave the proseminar of the Department of Human Development and Family Life on the subject, "Life, Death, Sex and the Human Mind."

Physical Chemists

DR. SHIH-I CHU continues his research on theoretical studies of the behavior of atoms and molecules in superintense laser fields, the structure and dynamics of floppy van der Waals molecular complexes, and he is also interested in exploring the mystery of quantum chaos and quantum fractals. During the summer of 1990, he organized a summer school on nonlinear optics and nonlinear dynamics in Taiwan with about one hundred faculty and graduate students participating. He also spoke at several national and international conferences in the past year and has frequently visited the new Institute of Atomic and Molecular Physics at Harvard University.

DR. MARLIN HARMONY has continued his spectroscopic studies of transient molecules in supersonic free jets. In addition to an apparatus dedicated to laser fluorescence studies a second free jet instrument is being developed for microwave work. Dr. Harmony continues as co-PI with Prof. Barbara Schowen on the Department's successful NSF Research Experience for Undergraduates (REU) summer program which has been funded through 1993. On the teaching front, Dr. Harmony lectured in Hoch Auditorium for the first-time--Chem 184--in the spring 1990 semester. Wife Nancy continues her multitude of technical assistance roles in the Higuchi Biosciences Center.

DR. PETER HIERL is continuing his experimental studies of the dynamics of gas-phase ion molecule reactions, using ion-beam scattering techniques. He and his students have also been carrying out combined experimental and theoretical investigations of the effects of temperature and reactant solvation upon the rates of nucleophilic substitution reactions in the gas phase. Now in his fourth year as Associate Chairman of the Department, Peter also chaired the Graduate Admissions Committee again this year. He reports that it now appears that we will have about 25 new graduate students joining our program next fall, which would make it the largest entering class the Department has had in a number of years.

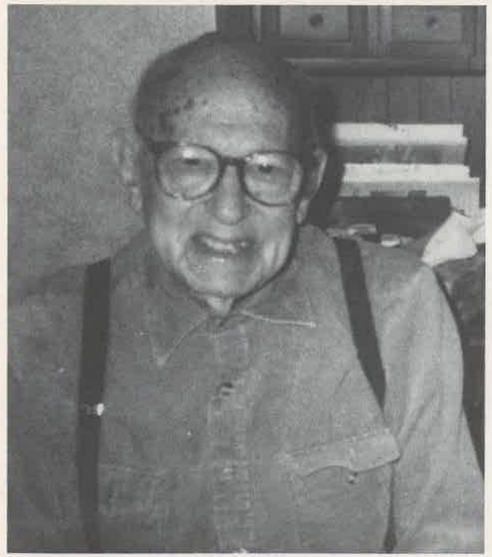
DR. CAREY JOHNSON is involved in studies of protein dynamics, ultrafast processes in photoactive proteins, and other spectroscopic probes of proteins. Currently, his group is studying the dynamics of protein conformational changes in the protein bacteriorhodopsin, an analog of the visual protein rhodopsin. A previously unobserved orientational motion in this protein has been detected on the microsecond time scale. During the past year, an experiment to study photochemical hole burning at cryogenic temperatures has also been set up with the help of Dr. Thomas Lehman of Bethel College. Carey's group currently comprises two postdoctoral associates and two graduate students. His wife Jean teaches math at Baker University in Baldwin City, south of Lawrence. Carey and Jean have a two-year old daughter, Elizabeth.

Emeritus Faculty

DR. WILLIAM J. ARGERSINGER, JR. continued to appear at his office in Malott Hall nearly everyday until February 24 when he entered Lawrence Memorial Hospital with symptoms that ultimately were diagnosed as those of a brain tumor. Bill underwent surgery on February 28 at the KU Medical Center. At the time of this writing, is back at home and appears to be recovering slowly.

DR. CLARK E. BRICKER continues to be active part-time in chemistry. This year he has helped with general chemistry discussion sections and an occasional lecture. On Saturdays, he is involved in a program to upgrade science teachers from elementary to high school level. The Bricker's first grandchild (a grandson) was born in 1990, and their vacations now involve visits to see him.

DR. ARTHUR W. DAVIDSON has been told that he is the oldest surviving KU faculty retiree! He says "since my oldest great-grandchild is not yet 16, it is highly unlikely that I shall ever become acquainted with a member of the fifth-generation." Last summer, Arthur underwent cataract surgery on both eyes, and as a result colors are much brighter for him, and vision for reading is greatly improved. He keeps in touch with events at KU and the rest of the world via the Oread newspapers and television. Also, he has become mildly addicted to the solving of pencil puzzles, especially cryptograms. Arthur still resides with his daughter and son-in-law in North Kansas City.



Professor Arthur Davidson at age 95.

DR. PAUL GILLES retired from the classroom and committees a year ago. Since then he has come to the university every day he is in town, helping one graduate student, working on a federal grant, trying to stay abreast of developments in high temperature chemistry, and arranging for the Midwest High Temperature and Solid State Chemistry Conference which is to be held in Lawrence June 10-12 this year. In the summer of 1990 he attended the Gordon Research Conference on High Temperature Chemistry and, after touring Ireland for a week with Helen, attended a meeting of the IUPAC Commission on High Temperature and Solid State Chemistry in Dublin.

DR. JACOB KLEINBERG is completing his seventh year of retirement, but he spends about three half-days a week in his office in Malott Hall. Jake continues to serve as a consultant for one of the Isotope and Nuclear Chemistry groups of the Los Alamos National Laboratory. In this connection he has recently completed the compilation and editing of the 5th edition of Collected Radiochemical and Geochemical Procedures.

INTERDISCIPLINARY BIOANALYTICAL RESEARCH BY CHEMISTRY FACULTY

In 1989 three research centers of excellence at KU were gathered together under a single administrative unit. This unit, named the Higuchi Biosciences Center in honor of the late Takeru Higuchi, consists of the Center for Biomedical Research, the Center for Bioanalytical Research and the Center for Drug Delivery Research. The administrative offices of these centers are now located in the new Higuchi Biosciences Center located on the KU West Campus.

The Center for Biomedical Research was established in 1981 to encourage KU faculty members to collaborate in multidisciplinary, basic biomedical research.

The Center for Drug Delivery Research, established in 1989 to enhance KU's long-standing excellence in drug delivery research, develops and improves the formulation and delivery of a variety of therapeutic agents.

The Center for Bioanalytical Research, locally referred to as "CBAR", was established in 1983. Its primary missions are to develop new reagents, methods, and devices for selective and highly-sensitive analysis of substances in biological media. Several faculty members in the Department of Chemistry work on CBAR projects in collaboration with faculty in the Departments of Biochemistry, Microbiology and in the School of Pharmacy. Synopses of these projects are given below. Names of chemistry faculty members are shown in boldface.

Catalytic Antibodies for Bioanalysis **(Schowen, Carlson, Givens, Wilson)**

This project involves the design and construction of new catalytic antibodies ("abzymes") to be produced for bioanalytical applications. A catalytic antibody is an antibody that acts like an enzyme. The antibodies will be produced against haptens that resemble the transition states of analytical derivatization reactions. The abzymes should permit the desired derivatization reactions to be favored over the competing side reactions. In this way, the selectivity of the derivatization will be increased and competing side reactions will be minimized. A long-term goal is the design of abzymes that will selectively catalyze the derivatization of particular analytes in mixtures, obviating the separation step.

Development of a Microdialysis System for Pharmacological Investigations (**C. Lunte**, S. Lunte, Riley)

Microdialysis sampling is a technique capable of continuous *in vivo* monitoring of biological reactions. This technique has been shown to have great potential for pharmacological investigations. A limitation of the microdialysis systems currently available is the lack of total automation of the sampling and the analytical operations. Each operation has been individually automated, but the two have not been interfaced. Three areas of research are being pursued: (1) automation of the microdialysis system for pharmacological investigations; (2) coupling of microdialysis with mass spectrometry; (3) application of microdialysis to transdermal drug delivery.

Development of a Reactor-Cartridge for the Analysis of Amines (Stobaugh, **Carlson**, Riley, **Givens**)

One of the major problems of liquid chromatography for trace analysis of amine analytes is the inconvenience of present derivatization procedures. In particular, excess tagging reagents often interfere in the analytical procedure, thus lowering the detectability of the analyte. To avoid these problems, the derivatizing reagents are being covalently bound to a functionalized polymeric support via a chemical leash. The resulting polymeric reagent can be packaged in the form of a cartridge and directly configured into a liquid chromatography system. With this approach, analytes can be determined by direct injection into a chromatographic system. Depending on how the systems are configured, derivatization can occur either prior to or after chromatographic separation. With respect to traditional off-line precolumn derivatization, a major advantage will be minimization of interferences from excess reagent and dilution of the sample during the reaction. This allows for efficient use of the sample and makes it possible to conduct the entire analysis on-line under computer control. Minor alterations in the basic reagent structure are also being investigated that will allow for either laser-induced fluorescence detection or use as chiral reagents for the determination of drug enantiomers.

Genetically Engineered Hybrid Anti-HIV Antibody (Wood, **Wilson**)

The use of recombinant DNA techniques to clone immunoglobulin (Ig) genes from mouse hybridoma and reintroduce the cloned genes into eukaryotic cells has a number of important advantages. First, the gene can be altered so that the resulting antibody product will be linked to an effector molecule such as a toxin or an enzyme, eliminating the need for attaching such moieties by conventional organic synthetic techniques. Second, hybridoma cells are inherently unstable and, upon continuous culture, can produce altered antibodies or none at all. This is a very serious matter if one is trying to produce a reagent of uniform characteristics. Finally, genetic manipulation of the immunoglobulin genes affords the possibility of site-directed mutagenesis that might result in a antibody of improved affinity or specificity. Currently, scientists at CBAR are attempting to clone antibody genes from a mouse hybridoma that secretes anti-HIV antibodies. Such an antibody is useful for diagnostic, analytical and therapeutic purposes. Furthermore, the gene of the effector molecule, firefly luciferase, can be linked to the isolated anti-HIV antibody gene so that a conjugate with the enzyme attached to the antibody heavy chain will result. A hybrid antibody molecule can then be reliably produced in culture. The resulting product will serve as a prototype for a series of analytical reagents using an extremely sensitive bioluminescent reaction for very low level detection.

Oxazole-based Fluorescent Tagging Reagents for the Analysis of Amines and Thiols Using High Performance Liquid Chromatography (**Carlson,Givens**)

The reactivities of two new fluorescent tagging reagents, 2-fluoro-4,5-diphenyloxazole (1) and 2-chloro -4,5-di(*p*-N,N-dimethylaminosulfonylphenyl)oxzaole (2), toward amines and thiols are being investigated. The oxazoles 1 and 2 form highly fluorescent derivatives with amines and thiols in aqueous media. The derivatives obtained were characterized and their fluorescence quantum efficiencies determined. The proline and N-acetylcysteine derivatives obtained from 1 and 2 are very stable under a variety of chemical and physical conditions. Precolumn derivatization followed by RP-HPLC separation of both peptides and thiols permitted fluorescence detection of several analytes in the low femtomole range. Chemiluminescence activation of oxazole derivatives of proline and alanine gave results which were comparable to those of the corresponding dansyl derivatives.

Immunoaffinity Chromatography (**Wilson**, Stobaugh)

The overall goals of this research are the development of methods for the preparation of monoclonal antibodies to biologically active peptides and the production of immunoaffinity columns for sample clean-up. To produce antibodies to peptides, several experimental problems must be addressed. Most peptides of similar biological function have structures that are highly conserved across species lines and not very immunogenic. They are also readily metabolized and unavailable for participations in the immune reaction. New methods for the production of antibodies to peptides are being investigated. These include evaluation of different carrier proteins and longer immunization protocols. Once the antibodies have been produced, they will be coupled to a support to produce an immunoaffinity column. This column will then be used to quantitatively remove all peptides possessing this sequence. The immunoaffinity separation will be followed by HPLC to separate the individual peptides.

Capillary Zone Electrophoresis of Peptides (Stobaugh,**Wilson**, S. Lunte)

In contrast to the slab-gels commonly utilized in conventional gel electrophoresis, capillary zone electrophoresis (CE) involves the use of narrow buffer-filled fused silica capillaries as the separation media. The small internal diameter of the capillaries (50-100 μm) allows efficient heat dissipation; therefore, much higher voltages (10-30 kV) can be applied across the system, resulting in faster electrophoretic separations. Several aspects of CE are being investigated including: (1) Separation of peptides from their primary degradation products. The deamindation of the asparagine residue in both ACTH and human epidermal growth factor has been investigated using this technique. (2) Modification of capillaries for enhanced separation. Novel chemical procedures to reduce protein absorption to silica are being investigated. Another goal is the elimination of pH dependence of the electro-osmotic flow. (3) New detectors for CE. Both laser-induced fluorescence and electrochemical detectors have been designed for use with CE.

Chemiluminescent Immunoassays (**Carlson, Givens, Wilson**)

Flow injection analysis is being combined with a solid phase immunoassay to produce a rapid and sensitive new analytical method. The system is based on the covalent immobilization of an antibody on a membrane or column support material. This serves as the "capture" antibody. After reaction with the analyte, an enzyme-labeled antibody is added. This enzyme (horseradish peroxidase, for example) catalyzes a chemiluminescent reaction. The luminol reaction has been employed with detection limits of 1 fmol and an assay time of less than 10 minutes. Detection limits should be enhanced by improving quantum efficiency of the chemiluminescent reaction and the collection efficiency of the emitted light. New chemiluminescent reagents are being synthesized. This approach should be useful for peptide and protein analytes as well as bacterial determinations.

New Detectors for Ultrasensitive Analysis (**Kuwana**, Stobaugh, Riley,**Givens**, S. Lunte, **C. Lunte**)

Several new detection systems have been developed or are under development at the Center. Most of these are designed for the detection of amines derivatized by naphthalenedialdehyde (NDA). NDA is a reagent developed by CBAR for the analysis of peptides, amino acids and other primary amines. Laser-based fluorescence detectors have been developed for both HPLC and CZE. These are based on the He-Cd laser, which emits light at 440 nm, which is the excitation wavelength for compounds derivatized with NDA. Chemiluminescence detection of peptides has been accomplished using a postcolumn detection system based on the aryl oxalate-hydrogen peroxide chemiluminescence reaction. Electrochemical detectors for LC and CZE based on carbon fiber electrodes have also been developed. Lastly, a "chemical diskette" has been developed. In this case, the eluent from the LC column is placed on a TLC plate using an X-Y recorder. The spots can then be interrogated using either LIF or surface-enhanced Raman as the method of detection.

SHIH-I CHU INAUGURAL LECTURE

Dr. Shih-I Chu was inaugurated as Watkins Distinguished Professor of Chemistry on March 25. His lecture was attended by many chemistry faculty and graduate students, other distinguished professors, and members of the academic community. Also, Shih-I's wife, Wen-wen, and his three children were present. A reception and dinner in Shih-I's honor were held afterwards.

The lecture was entitled "Chaos: Making a New Science". Shih-I began by pointing out that chaos was first defined around 600 B.C. by the ancient Chinese philosopher Lao Tze, but that the current mathematical definition of "deterministic chaos" is needed to describe stochastic behavior and nonlinear dynamics. Chaotic motion arises from internal properties of nonlinear systems, not from random forces. Some familiar examples include chemical reactions, lasers, fluid motion, weather, the motion of Saturn's rings, and vibrational motions of Van der Waals complexes.

He then described how chaotic motion exhibits a new branch of geometry called fractals which are now recognized in computer graphic modeling of natural shapes such as clouds, coastlines, and snowflakes, and in certain forms of art. Shih-I's contributions to the new science concern the microscopic domain, in particular the correspondence between quantum and

classical theories of molecules. He pointed out that quantum mechanical analogs of a chaotic classical system need not be chaotic. For his research in this area, Shih-I has developed a theoretical technique called "complex-coordinate coupled-channel formalism" for the quantal treatment of highly-excited, metastable, quasi-bound resonance states whose classical counterparts are chaotic. He concluded the lecture by showing some examples of newly-found quantum fractals from his research, but he emphasized that the existence and exact nature of quantum chaos remains a great mystery.

GILLES RETIREMENT RECEPTION

Drs. Paul and Helen Gilles were guests of honor at a Departmental reception at the Adams Alumni Center on June 8, 1990, marking Paul's retirement after 43 years of active service to the University of Kansas. Approximately 200 people attended, including two of the Gilles' children, Tim and Kathy (Becky was unable to attend), several grandchildren, Paul's brother Don and Helen's sister Corrine and brother Keith, with their spouses and several children. Paul's mentor, Leo Brewer, came from Berkeley and about a dozen of Paul's Ph.D. and post-doctoral students came from all over. Many University and community friends and, of course, the Departmental complement gathered to celebrate the occasion.

After an hour's fellowship and pleasant music by Scott Newman's string quartet, a perhaps too lengthy but obviously heart-filled program of remarks was presented. The speakers in order were:

Jake Kleinberg, Master of Ceremonies, in his usual Grade AAAA style;

Bill Argersinger giving a brief biography of Paul;

Chancellor Emeritus Ray Nichols with remarks on Paul and the University;

Dr. Bob Thorn of Argonne National Laboratory, who proposed the establishment of a joint ANL-KU Institute for Advanced High Temperature Chemistry;

Distinguished Professor Marilyn Stokstad, who remembered numerous stories of Paul's service on the Summerfield-Watkins Committee;

Tim Gilles, whose warm recollections included the moving story of his and Paul's canoe trip in the Northland to secure emergency medical help for a camp mate;

Professsor Marlin Harmony, who recounted the dramatic story of Paul's influence on the career of a young chemical engineer - himself;

Distinguished Professor John Margrave, Paul's first Ph.D. student, with his recollection of their association as fellow undergraduates, roommates, mentor and candidate, and mature active scientists;

Jane Kleinberg, who presented Paul and Helen a lively ceramic "Grandchildren" pot of her own making;

Kansas Representative Jessie Branson, who read and presented a resolution passed by the Kansas Legislature honoring Paul for his accomplishments and many years of service;

and Paul himself, whose thoughtful responses were typical of all he has been and has done for the University, the Department, and his friends.

The text of the resolution passed by the Kansas Legislature is given below:

HOUSE RESOLUTION NO. 6139

A RESOLUTION congratulating and commending Paul W. Gilles upon his retirement as University Distinguished Professor at the University of Kansas.

WHEREAS, Paul W. Gilles was born on January 13, 1921, in Kansas City, Kansas. He earned a Bachelor of Arts degree from The University of Kansas where he was a Summerfield Scholar. He was a member of the Junior and Senior Men's Honor Societies and Phi Beta Kappa Society; and

WHEREAS, In 1947, Paul W. Gilles received a Doctor of Philosophy degree in Physical Chemistry from the University of California. He was a teaching assistant, a DuPont Fellow in Chemistry and a member of Sigma Xi Society. He also was a research assistant on the Manhattan Project; and

WHEREAS, Paul W. Gilles joined the faculty of The University of Kansas in 1947 as an Assistant Professor of Chemistry. He became an Associate Professor in 1952, a Professor in 1958 and has been University Distinguished Professor since 1963 to the present time. He served as a Resident Research Associate with the Argonne National Laboratory and has been a consultant with the Argonne National Laboratory, Dow Chemical Company, DuPont Company, Los Alamos National Laboratory, Midwest Research Institute, General Electric Company and Brookhaven National Laboratory; and,

WHEREAS, Paul W. Gilles is recognized around the world as a pioneer and continuing leader in research in high temperature thermodynamics and properties of materials. In 43 years of dedicated service to The University of Kansas, he has taught thousands of undergraduate students of general and physical chemistry. Among the scientists he has trained are 24 doctoral graduates, seven masters

Alumni returning for the Gilles retirement reception. From left to right: Dean Peterson, Ph.D. 1972; Bruce Conard (rear)Post-Ph.D. 1972; Horng-yih Chen (front), Ph.D. 1968; Gary Rinehart, Ph.D. 1978; John Y-K Huang, Ph.D. 1981; Harry Robson (hidden), Ph.D. 1958; Paul Nordine (partially hidden) Ph.D. 1970; Luis Morales Ph.D. 1992; H. F. Franzen (partially hidden), Ph.D. 1962; Paul Gilles; Jimmie Edwards, Post-Ph.D. 1967; Quentin Wheatley Ph.D. 1954; Phillip Wahlbeck (hidden), Post-Ph.D. 1960; Sin-Shong Lin, Ph.D. 1966; John L. Margrave, Ph.D. 1950; Thomas Milne Ph.D. 1954.

Alumni returning for the Gilles retirement reception. From left to right: Horng-yih Chen (out of view), Ph.D. 1968; Dean Peterson (out of view), Ph.D. 1972; John Y-K Huang (out of view), Ph.D. 1981; Gary Rinehart (hidden), Ph.D. 1978; Luis Morales, Ph.D. 1992; Bruce Conard (rear), Post-Ph.D. 1972; Paul Nordine, Ph.D. 1970; Paul Gilles, Harry Robson (partially hidden), Ph.D. 1958; H. F. Franzen (partially hidden), Ph.D. 1962; Quentin Wheatley, Ph.D. 1954; Jimmie Edwards (rear), Post-Ph.D. 1967; Sin-Shong Lin, Ph.D. 1966; John Margrave, Ph.D. 1950; Phillip Wahlbeck (partially hidden), Post-Ph.D. 1960; Thomas Milne, Ph.D. 1954.

graduates and 23 post-doctoral students. His own research, starting with work on the Atom Bomb Project in World War II and continuing without interruption, has resulted in numerous publications and requests for consultation. He has participated in 29 international conferences, and has shared heavily in the work of the International Union of Pure and Applied Chemistry, as well as many other scientific, academic and educational organizations; and

WHEREAS, Paul W. Gilles and Helen E. Martin were married on December 22, 1944. They have one son, Timothy, and two daughters, Rebecca and Kathleen; and

WHEREAS, Paul W. Gilles has always been a leader in University service since his undergraduate days as an early Summerfield Scholar. His contributions to the community and State, with those of his wife, Dr. Helen Gilles, have been unstinting and substantial; and

WHEREAS, The State of Kansas may take much pride in its loyal native son, Paul W. Gilles: Now, therefore,

Be it resolved by the House of Representatives of the State of Kansas: That we congratulate and commend Paul W. Gilles for his lifelong service to the young people of this State and to the University, and for his many contributions to Science.

On May 31, 1990, a reception was held for **Helen Gilles** to honor her retirement from the student health center at Haskell Junior College. Helen had been employed there part-time since her retirement several years ago as a pediatrician in Lawrence.

IWAMOTO AND VEDANI FAREWELL PARTY

A buffet party in honor of Florence and Rey Iwamoto and Susanne and Angelo Vedani was held on December 14 at the Schowen's new country home. Rey decided to retire at the end of the 1990 fall semester after serving the Department and the University of Kansas for 34-1/2 years. Rey and Florence plan to remain at their residence in Lawrence, at least for the immediate future. Susanne and Angelo returned to their native Switzerland at the end of December, where Angelo assumed the position of Director of the newly-organized Swiss Institute for Alternatives to Animal Testing in Basel. He is developing computer models (receptor mapping) to serve as alternatives to the use of animals in pharmaceutical research.

The party was well attended by members of the Department, their spouses and a few friends. The Iwamoto's daughter Karen Berlekamp, her husband Joe, and their 22-month old daughter, Kristen, were present. During an informal program, tributes to Rey were made by Bill Argersinger (in form of a poem he wrote for the occasion), by Ralph Adams, and by Clark Bricker. Clark traced Rey's professional career from the University of Hawaii, where he earned his bachelor's and master's degrees, to Harvard, where he received his Ph.D., to Princeton, where he taught for a year, and finally to KU. During Rey's long and successful tenure at KU, his research endeavors covered diverse areas such as the nature and behavior of inorganic species in nonaqueous media, the redox chemistry of metalloporphyrins, and photosynthesis. He served as mentor for 23 doctoral, 8 masters, and 5 postdoctoral students. Dick Schowen spoke warmly and eloquently of Susanna and of Angelo, his career at KU, and his long-standing interest in alternatives to animal experiments that led him to accept the challenge of his new position.

A good time was had by all, the food (prepared by several families in the Department) was both plentiful and good, and the Schowens proved, as usual, to be superb hosts.

JOHN LAWRENCE RETIREMENT RECEPTION

John Lawrence retired in February after serving the Department for 17 years in the electrical shop. During that time John repaired everything from pH meters to computer-controlled spectrometers. His willingness to help, his expertise, and his genuine friendliness and sincerity will be missed by all.

A reception, held in the departmental conference room on February 12 to honor John and his wife Dorothy, was well attended by faculty, staff, and graduate students. Tributes to John were given by Jack Rose, Rich Givens, and Kenneth Ratzlaff. Kenneth read a poem he had written for the occasion and then presented John with a memento of the past--a large, old-style vacuum tube (from a 1960's-vintage nmr spectrometer) skillfully mounted on a wood base.

DISTINGUISHED LECTURERS

DR. BERTRAM FRASER-REID, James B. Duke Distinguished Professor of Chemistry, Duke University, presented the forty-third annual Frank Burnett Dains Memorial Lecture on November 15. His talk was entitled "The Chemistry of N-Pentenyl-Glycosides; A Contemporary Case of Serendipity."

DR. LEONARD F. LINDOY, Personal Professor of Chemistry, James Cook University, Queensland, Australia, was the fifth annual Ray Q. Brewster Memorial Lecturer. His presentation, entitled "Heavy Metal Ion Recognition by Macrocyclic Systems" was on January 14.

DR. DONALD T. SAWYER, Distinguished Professor of Chemistry, Texas A & M University, presented the twenty-ninth annual Henry Werner Lecture on April 8. Dr. Sawyer's lecture was entitled "Oxygen Chemistry: Reactivity and Activation of Dioxygen Species (O_2, HOOH, HOO·, O_2^-·, and HOO^-).

DR. DONALD J. TRUHLAR, Professor of Chemistry at the University of Minnesota, was the fifth annual Arthur W. Davidson Lecturer. His lecture, given on April 29, was entitled "Quantized Transition States."

GRANTS TO THE DEPARTMENT

1. Research Laboratory Remodeling

A grant from the National Science Foundation's "Academic Research Facilities Modernization Program" will be used to remodel space on the 6th floor of Malott vacated when the Science Library moved to its new building. Also, selected research laboratories on the basement, 1st, 2nd, and 5th floors of Malott will be improved. The NSF grant of $299,839 will be matched by a state contribution of $304,575. This grant was awarded as the result of efforts by Jack Landgrebe.

2. Summer Undergraduate Research

Through the efforts of Barbara Schowen and Marlin Harmony, the National Science Foundation once again awarded a grant to the Department to support undergraduate students during the summer under the NSF program "Research Experience for Undergraduates." Twelve students, most of whom are juniors from other colleges, will participate in the program at KU. NSF provided $40,000.

3. NMR in the Undergraduate Curriculum

Jack Landgrebe, David VanderVelde, and Kenneth Ratzlaff were awarded funds from the National Science Foundation to purchase a robotic sample changer for one of KU's recently acquired high-field nmr spectrometers and also to develop nmr simulation software. The grant is designed to allow undergraduate students to use a state-of-the-art nmr spectrometer and to enhance their training in acquiring and interpreting nmr spectra. Landgrebe says "probably no major university in the country will be able to run student samples with nmr equipment like ours." The NSF grant provided $24,000, and this was matched with another $24,000 from state funds.

4. Summer Research for College Teachers

Ted Kuwana has been awarded $55,600 from NSF to support five college teachers for a ten-week period this summer to do research in bioanalytical chemistry. This grant is renewable for two years.

5. High Pressure Liquid Chromatograph

Through the efforts of George Wilson, Hewlett-Packard Company has given the department an HPLC system including accessories valued at $64,705.

6. FT Infrared/Raman Spectrometer.

NSF awarded $187,646 to Carey Johnson, Daryle Busch, and George Wilson to purchase a Fourier transform Raman/infrared spectrometer and laser system for time-resolved Raman spectroscopy.

ARTHUR W. DAVIDSON AWARDS

Alpha Rho Chapter of Phi Lambda Upsilon Honorary Chemistry Society held its annual initiation ceremony on April 12 and presented Arthur W. Davidson awards to three outstanding students. Recipients were Kirsten Unger, a senior majoring in chemistry and biochemistry, Kevin Hughes, a senior majoring in chemistry, and Bill Kueper, a graduate student in chemistry.

1991 HONORS BANQUET

The annual Departmental Honors Banquet was held in the student union on Saturday, May 4. In attendance were students, spouses, parents, faculty, and a few university administrators. Professor Emeritus and former Department Chairman Jacob "Jake" Kleinberg was this year's speaker. Jake, in his usual entertaining and witty manner, gave a very interesting and informative talk in which he traced the history of the Department from its beginning to the 1950's.

Awards presented and student recipients are as follows:

EXCELLENCE IN GENERAL CHEMISTRY

Two Semester Course

Shelly L. Bledsoe
Jill E. Brandenburg
Marci A. Brecheisen
Mei Mei Fong
Sheepei Kuan
Cara R. Traver
Kok Yoong

OWEN W. MALONEY SCHOLARSHIP
(Outstanding First-Year Student in Chemistry)

James C. Day

EXCELLENCE IN ORGANIC CHEMISTRY

One Semester Course
Janice E. McClelland

Two Semester Course
Tu Thanh (Peter) Bui
Alan E. Smith

EXCELLENCE IN ANALYTICAL CHEMISTRY

Kevin Hughes
Wei Wu

TAFT AWARD FOR EXCELLENCE IN PHYSICAL CHEMISTRY

One Semester Course
William G. Stueve

Two Semester Course
En-Jia (Angie) Yang

THE C.E. SPAHR SCHOLARSHIPS

Rhonda Yantiss
Sing Hwa Chong

CLARK E. BRICKER AWARD
(Outstanding Second-Year Chemistry Major)

Natividad Ruiz

JACOB KLEINBERG AWARD
(Outstanding Research by a Junior)

Michael W. Ducey, Jr.

SORG SCHOLARSHIP
(Outstanding Beginning Student in Chemistry)

Jeffery S. Johnson
Fang Zhao

SPECIAL AWARD FOR OUTSTANDING ACHIEVEMENT IN CHEMISTRY TO GRADUATING SENIORS PURSUING A CAREER IN MEDICINE
Jose Ruth Alpers
Kevin Hughes

FASSNACHT SCHOLARSHIP
(Outstanding Advanced Student in Chemistry)

En-Jia (Angie) Yang

AMERICAN INSTITUTE OF CHEMISTS AWARD
(National Award to an Outstanding Senior in Chemistry)

Wei Wu

ALPHA CHI SIGMA AWARD
(Outstanding Graduating Seniors in Chemistry and Chemical Engineering)

Kevin Bourque
Kevin Hughes

SNYDER SCHOLARSHIP
(Outstanding Woman Chemistry Student)

Jingyan Wang

H.P. CADY AWARD
(Outstanding First-Year Graduate Student)

Nancy Winchester Eilerts

OUTSTANDING FIRST-YEAR TEACHING ASSISTANT

Nancy Winchester Eilerts
Malonne Davies

RAY Q. BREWSTER AWARD
(Outstanding Graduate Teaching Assistant)
Mark Nachtigall

PHILLIPS/McCOLLUM SUMMER RESEARCH FELLOWSHIPS
(Outstanding Advanced Graduate Students)

Dennis O. Scott
Yanan Zhang

HIGUCHI DOCTORAL PROGRESS AWARD

Jayachandra Reddy

J. K. LEE AWARD
(Outstanding Graduate Student)

Dong (Donna) Wei

We would like to hear from you! We invite you to fill in this form and return it to:
Newsletter Editor, Department of Chemistry,University of Kansas, Lawrence, KS 66045-0046.

NAME_____

KU DEGREE and YEAR RECEIVED_____

PRESENT POSITION_____

ADDRESS (IF ANY CHANGE)_____

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

COMMENTS ON NEWSLETTER (content, format, etc.)

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Our 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, and 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 for husband and wife; life memberships are also available.

____ Contribution to the Paul and Helen Gilles Fund enclosed.

____ Contribution to the Rey Iwamoto Fund enclosed.

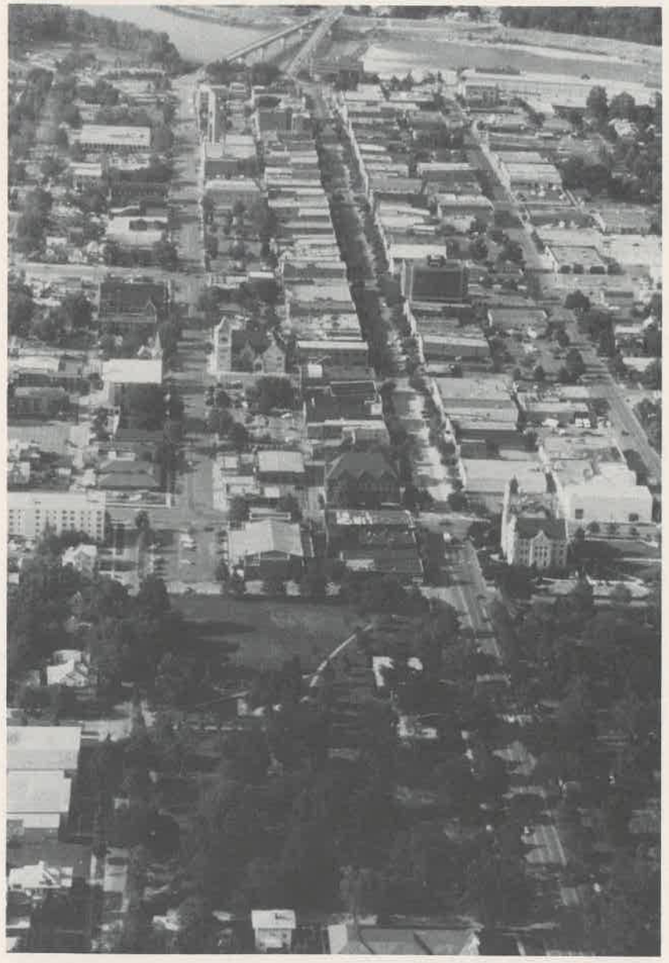
____ Contribution to the J. K. Lee Memorial Fund enclosed.

ALUMNI NEWSLETTER

DEPARTMENT OF CHEMISTRY

UNIVERSITY OF KANSAS

JUNE 1991



1990 aerial photograph of downtown Lawrence looking north (courtesy of the Lawrence Journal World). South Park, divided by Massachusetts Street, may be seen at the bottom of the photo. The old court house and the Douglas County Historical Museum are just north of the park on the east and west sides, respectively, of Massachusetts Street. The twin bridges across the Kansas River appear at the top; the building at the north end of Massachusetts Street by the bridge is City Hall. The large building to the right of City Hall is the new Riverfront Shopping Mall.