The University of Kansas
Department of Chemistry
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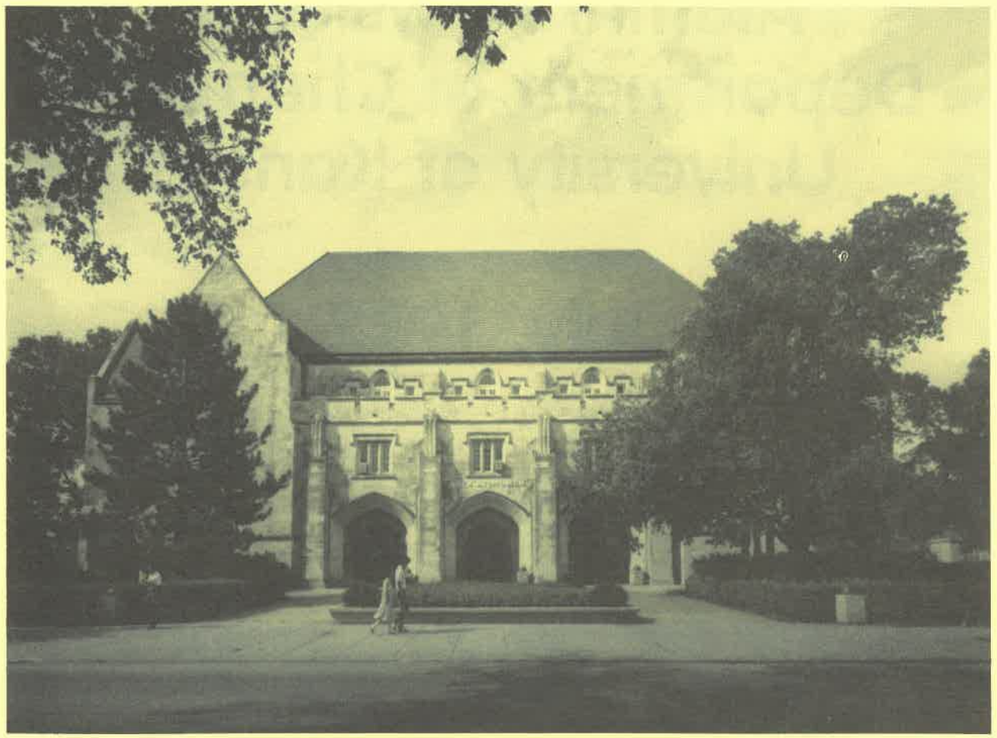
Our Department receives generous assistance from the KU Alumni Association in distributing its newsletter. We believe a strong and informed alumni group can be one of the most important supports of a department and of a university, and we urge all our former students and colleagues to join the Alumni 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.

Contributions to the Paul and Helen Gilles Fund, the Rey Iwamoto Fund, and the J.K. Lee Memorial Fund, or any other departmental funds may be sent directly to the Chairman of the Department of Chemistry or the University of Kansas Endowment Association.



Hoch Auditorium

The "Chem-Hawk" on the cover of this Newsletter was provided by Dr. Umashanker (Pop) Sampath, a former graduate student in our department. Pop received the Ph.D. degree this year working with Prof. Tom Engler and currently is doing post-doctoral research at Washington University in St. Louis.

CHAIRMAN'S LETTER

Dear Friends and Alumni:

As the annual newsletter goes to press, I am pleased to report that Kansas Governor Joan Finney has signed the appropriation that will fund the reconstruction of Hoch Auditorium. You may recall that the last newsletter reported that Hoch was struck by lightning and burned to the ground, taking with it the "classroom" for our General and Organic Chemistry courses. We have managed quite well during the year thanks to the cooperation of the Kansas Union and the folks in Murphy Hall. General Chemistry was taught in Crafton-Preyer Theatre and Organic Chemistry in Woodruff Auditorium. These arrangements will probably continue through the Spring of 1996, the projected date for completion of the "new" Hoch. Hoch, itself, will retain the original facade which did survive the fire. The rest of the structure will be completely rebuilt and will house a combination of a 1000 person lecture auditorium, two 500 person lecture halls and four 50 person classrooms along with expansion space for the Anschutz Science Library.

This Spring the remodeling of the sixth floor of Malott and the refurbishing of 35 research laboratories began in earnest. The project, funded by an NSF Laboratory Modernization Grant with an equal match from the University, is under the watchful eyes of Jack Rose and Jack Landgrebe. They expect completion of the first phase which includes renovation of the sixth floor by the end of the summer. At that time, the X-ray, Biochemical Resource, and Electronics Design Service Facilities will relocate to the new quarters. The rest of the remodeling is scheduled to be completed by the end of next year.

The space vacated by the service laboratories has already been assigned to our three new faculty additions to the Department. Bob Bowman, who arrived in August, has assembled his laser unit in B036 and has already exceeded the capacity of his space with the addition of two new graduate students and several undergraduates. Krzysztof Kuczera has moved into laboratories on the fifth floor in which he has installed a new IBM RISK 550 work station complementing the Evans and Sutherland and graphics equipment he inherited with the position. Finally, Cindy Larive, our most recent addition in analytical chemistry, will be arriving in August from Riverside, California, and will occupy the "old" X-Ray Service Laboratory. She recently completed her Ph.D. dissertation with Professor Dallas Rabenstein. Her background and interest in NMR spectroscopy of proteins in aqueous media will add a new dimension to the analytical division.

The State of Kansas has been selected (along with Nebraska) to join in the NSF sponsored *Experimental Program to Stimulate Competitive Research* known by the acronym EPSCoR. Ted Kuwana was selected as the project director for the State and is coordinating the activities for our state proposal to NSF through K*STAR, the Kansas Science and Technology Advanced Research program. Fifty-six individual and group proposals were submitted from KU, KSU, and WSU of which sixteen were selected by K*STAR to be included in the final NSF EPSCoR proposal. The request is for $9,000,000 for three years, the funds to come equally from NSF and the State. Four of the 16 proposals selected were headed by faculty in the Department. Daryle Busch, Shih-I Chu, Carey Johnson, and George Wilson each served as the principal investigator for an interdisciplinary group of investigators. The EPSCoR proposal is currently being evaluated by NSF and the results should be forthcoming by the middle of this Fall.

Shortly after the annual Honors Banquet in May, the Department lost one of its valued and long-time faculty, with the death of Emeritus Professor Ernie Griswold. Ernie retired in 1975 and traveled extensively with Marvel until about six years ago when a stroke slowed his activities. Ernie was always a very strong supporter of the Department and the University and will be missed by all of his former students and friends. Later in this issue there is a tribute to Professor Griswold written by Jake Kleinberg.

The decade of the 90's has witnessed two notable milestones for the Department. Our records indicate that 1990 marked the 100th anniversary of the first graduate degree in Chemistry. In 1890,

a master of science degree was awarded to Edward Curtis Franklin. The 90th anniversary of the first doctorate in Chemistry will occur next year commemorating Hamilton P. Cady. Both of these names should be familiar to all of those who have attended the annual Honors Banquet and the memorial lectures sponsored by the Department. An especially interesting milestone occurred this year when the 1000th Chemistry graduate degree was awarded at the all-University Commencement in May. By our tallies, over 440 masters and 560 Ph.D degrees have been granted since E.C. Franklin received his master of science degree in 1890.

It is also noteworthy that the number of students graduating with a Ph.D. is on the upswing. This year, thirteen students completed the degree, the largest class in over a decade. We have also seen a substantial increase in our graduate enrollment which now stands at 71 and is sure to increase when the 28 entering students arrive in August.

All of the news is not this optimistic, however. We continue to struggle with our budgetary problems, especially those that pertain to undergraduate equipment. There are plans in the elementary stages to help remedy this deficiency, but the problem persists in spite of several very good initiatives by the faculty and the College. The NSF, NIH, and industrial friends have been able to provide significant assistance over the past several years, but rapid innovations and escalating costs have outstripped the resources available to the University and the Department.

A second major concern is the addition of new faculty. Although we were fortunate to have added three new members during this year, we persistently find ourselves understaffed. We remain two faculty below our number when I became chair in 1988. We will experience yet another retirement at the end of the summer when Buzz Adams will retire from teaching. Fortunately, he will continue his very active research program, but we will miss the highly regarded contributions to the instructional programs.

A major impediment to hiring new faculty has been the cost of start up funds for research equipment. Chemistry departments at the major universities are providing start up packages of between $100,000 and $500,000 to their new faculty in chemistry. There has been a reluctance to authorize new searches with such formidable costs associated with hiring a new science faculty. Nonetheless, we continue to press for new faculty.

I will close with my traditional *thank you* for your continued support of the Department. The Endowment funds have been a crucial resource for a large number of the major activities of this department including our recruiting of new faculty and graduate students and to reward the scholarship and achievements of our undergraduate and graduate students. These funds also have assisted our own faculty in their research and teaching efforts on many occasions when other resources were unavailable or inadequate. Last, but not least, I want to thank the 350 of you who responded to our undergraduate survey last year. We have already made good use of the results for our Board of Regents mandated assessment and will be depending on it again this fall when we compile our undergraduate review.

My very best regards,

Sincerely yours,

Richard S. Givens, Chairman

June 1992

HOCH AUDITORIUM 1927-1991

by Grover Everett

The destruction of Hoch Auditorium last June by fire, apparently caused by lightning, has had a major impact on many university activities including concerts, other public programs, and large classes. Scheduling problems will likely continue for years. The loss of Hoch probably affects the Department of Chemistry more than any other single university organization because of our traditional use of Hoch (since 1966) as a lecture hall for the large undergraduate classes in chemistry. Thus it seemed appropriate to include in this year's newsletter an article about Hoch Auditorium, tracing its history from conception to destruction.

It was hot and humid on the morning of Saturday, June 15, 1991, a morning more typical of July in Kansas. Around mid-afternoon, dark clouds gathered in the west and quickly moved over Lawrence. A ferocious storm ensued, accompanied by high winds, heavy rain, frequent lightning, and hail. A storm earlier in the spring had caused extensive hail damage in Lawrence, so my initial fear was that the wind-driven hail hitting windows in my home would break them and damage the roof. When the storm subsided somewhat, sirens could be heard, and I could see a column of dark smoke rising above the trees in the general direction of the university. I drove over to Daisy Hill for a better view, and it was clear that a major fire was consuming Hoch Auditorium. The diameter of the smoke column was as large as the width of the auditorium. Flames extended well above the roof, and fire-fighting cranes hovered over the roof from the north side. In spite of the continual rain showers, a crowd estimated at between 500 and 600 spectators gathered on Jayhawk Boulevard to watch the fire fighters in action.

It had begun around 3:20 P.M. when two students reported seeing lightning strike the auditorium. The bolt was also heard by a group who had taken shelter from the storm in Wescoe Hall, just east of Hoch, while on a historic walking tour of Jayhawk Boulevard. During the early stages of the fire, a crew entered Hoch and attempted to fight the fire from the balcony. However, these fire fighters left quickly when the ceiling showed signs of collapsing. Off-duty fire fighters were contacted, and all eight of Lawrence's fire trucks were called into service. Also, fire departments from Overland Park, Shawnee, Lenexa, Eudora, and the Townships of Wakarusa, Eudora, and Lexington were called to help. The frequent lightning made it risky for fire fighters to climb ladders. The fire burned out of control for nearly four hours. Marvin Hall, just west of Hoch, and the Anschutz Science Library, immediately south of Hoch, were evacuated, and fire fighters hosed down the north side of Anschutz to protect it from the intense heat. A week after the fire, smoke could still be seen rising from the rubble. Later, crews were employed to knock down parts of the east and west walls and more than half of the south wall, which towered above the Anschutz Library. The Hoch fire is believed to be the most costly single fire in the history of Lawrence. The value of Hoch was estimated in 1990 to be $12.8 million, exclusive of its contents. The building was not insured.

The crowd of spectators on Jayhawk Boulevard during the fire included Professor Albert Burgstahler. His eyewitness impressions are presented below.

I had returned to my office about 3 o'clock, and a short time later a student informed me that Hoch Auditorium was burning uncontrollably. I rushed outside to look and was shocked to see towering flames and huge clouds of smoke spewing from what was left of the roof of that venerable structure.

Crowds of people had gathered, and, to get a better view, I went to one of the terraces on the west side of Wescoe Hall where I could see the entire east side of Hoch. I was appalled by the solid sheet of bright yellow flames roaring behind the windows and side doors. The fire inside was so intense that it made me think of a blazing inferno. I thought of the story of the three men Shadrach, Mishach, and Abednego, in the Book of Daniel, who were cast into a "burning fiery furnace" heated "seven

Hoch Auditorium during the height of the fire. [Photo by Tim Miller]

View of the main entrance to Hoch a few days after the fire. The appearance is still much the same at the time of this writing. [Photo by Tim Miller]

View of the interior of Hoch Auditorium after the fire. The steel beams shown once supported the roof. [Photo by Tim Miller]

The level area of the floor of Hoch Auditorium showing how it was set up for basketball in the 1927-1955 era. [Photo courtesy of University Archives]

times more than it was wont to be."

By the early 1920s, KU had outgrown a succession of auditoriums. The two auditoriums available at that time (Fraser Chapel and an auditorium in Strong Hall) were far too small, and since 1907 old Robinson Gymnasium had been used for convocations, lectures, concerts, commencement, and basketball ("Dr. Naismith's game"). The entire gymnasium floor could be covered with chairs, and by using the galleries also, up to 2500 people could be accommodated. However, it was a considerable nuisance having to move chairs in and out to allow for gym classes. Basketball fans nearly hung from the rafters of Robinson in the 1920s. In 1925 the Kansas Legislature granted $250,000 for a new auditorium at KU. (Completion of the auditorium and furnishings required a grant of an additional $100,000 in 1927.) The auditorium was designed to provide for as many types of university activities as possible, and because of the popularity of basketball, the plan included two balconies and a level area sufficiently large for a basketball court. A site for Hoch Auditorium was selected "toward the western end" of campus, between old Haworth and Marvin Halls. A frame observatory, used by astronomy classes since 1919, had to be removed from the site. Construction began in April, 1926. It was soon discovered that because of the slope of the hill, it would be necessary to put down deep pilings to support the great weight of the building. More than 300 cement pilings, 2 feet in diameter, were put down to anchor the foundation of the 130 by 260 foot building. Nearly 300 tons of steel girders were used to support the structure, and during construction the steel frame was said to resemble a large ship turned upside down. The front facade of the building was constructed of Indiana limestone. The interior of the building was designed to resemble that of the Hill Memorial Auditorium at the University of Michigan. The main source of lighting was the large chandelier hanging from the center of the ceiling. This chandelier cost $1,300, weighed 3,000 lbs. and held 345 light bulbs.

The $317,800 auditorium was officially dedicated on October 14, 1927 (less than a week after dedications of the Memorial Union and the Stadium), in an evening ceremony attended by nearly 4000 people including more than 100 newspaper editors from Kansas, members of the Kansas Legislature, and economics teachers from Kansas colleges. Chancellor E.H. Lindley presided at the dedication. Charles F. Scott, Editor of the Iola Register, and W.Y. Morgan, Chairman of the Kansas Board of Regents, gave the main addresses. The audience participated in singing "Crimson and the Blue" and "Rock Chalk, Jay Hawk, KU".

In 1929, by special legislative enactment, the auditorium was named in honor of former Governor Hoch. In 1874, at the age of 25, Edward Wallace Hoch purchased the Marion Record and was associated with this newspaper until his death in 1925. He was elected to the Kansas House of Representatives in 1888 and became Speaker of the House in 1893. He served as Governor of Kansas from 1905-1909. In 1932 he was elected to the Kansas Newspaper Hall of Fame.

Three years after the construction of Hoch, it appeared that the roof might not be strong enough to support the weight of heavy snows. The roof was subsequently reinforced by university employees using timbers. In 1950 the original stage curtain in Hoch was replaced with a curtain 46 feet high and 86 feet wide that was described variously as "the nation's largest" or the "world's largest" stage curtain. It cost $32,000, which was more than 1/10 the original cost of constructing the entire building! The new curtain was nearly identical to the one in Radio City Music Hall in New York. It consisted of 13 panels with a total weight of 3,600 lbs. and was controlled by eleven electric motors.

The level part of the floor of Hoch Auditorium was intended to be a "temporary" basketball court. It was temporary for 28 years! Even the stage held bleachers that could accommodate 400 basketball fans. Chancellor Lindley had promised that as soon as another basketball court could be built, the floor of Hoch would be converted to a style more suitable for a theater. The basketball goals were removable, so that the auditorium had the appearance of a basketball court only on game days. By 1945 there was standing room only at most basketball games. One game that season sold 4200 tickets and 1500 additional fans were turned away. Visiting teams complained that they could not play well in Hoch. The KU team practiced in old Robinson Gymnasium. They never played twice in one week in Hoch because the players complained of shin splints from running on the floor, which was built of maple over a concrete base.

I recently asked members of the Chemistry Department (including Emeritus Faculty) who have taught classes in Hoch to contribute personal recollections of unusual events that occurred during classes or examinations. My own experiences have ranged from exhilaration to frustration. Each semester in Hoch presented different challenges. Students in my classes included family friends or boys formerly in my Scout Troop, and one semester my own son was among the 930 students in CHEM 184. Although I have been embarrassed by demonstrations that failed, perhaps the most traumatic event for me in Hoch occurred on my 50th birthday last March:

Only five minutes remained in the class period, and the students were clearly eager for me to finish. I heard a commotion in the rear of the auditorium, and a young woman appeared, dressed as a Mexican bandita, blowing a horn, and carrying a cluster of large, black balloons. She danced her way down the center aisle to the podium, placed a party hat on my head, and took over the microphone to sing "Happy Birthday." Then, before several hundred amused students, she kissed me, presented the balloons along with a card from my sister (who had arranged the event), then quickly left.

Jake Kleinberg recalled several amusing incidents but felt they are not printable. Dick Schowen once invited Ed Smissman (medicinal chemistry) to speak to his organic class about applications of organic chemistry in medicine. Dick relates:

When Ed started his lecture, he noticed people in the rear of Hoch reading newspapers and playing cards. Not realizing these were just transients and not organic students, he strode to the back of the auditorium and raised hell, more or less like Jesus cleansing the temple of the moneychangers. He probably favorably affected the behavior of a lot of people who had no connection with organic chemistry.

Dick also recalls that Chris Falzone, a graduate TA, proctoring an exam on Halloween, appeared in costume as a samurai:

He brought a machete and cabbage and just before the exam, he tossed the cabbage in the air and split it with the machete. His enthusiasm surpassed his aim and he split a chair in the front row along with the cabbage.

Clark Bricker, who retired in 1983, probably taught more classes in Hoch than anyone else. His narrative below traces the history of the department's use of Hoch as a lecture theater for large classes in general chemistry.

Prior to my coming to KU in 1963, there were at least two general chemistry courses that had enrollments of 200 to 300 students in each course. The lectures for one of these courses were held in the large room in old Fraser Hall. The other course met in Malott Hall, usually in 2 or 3 different sections. In the middle '60s, old Fraser was demolished, enrollment of undergraduates was increasing at the rate of at least 1000 a year, and the two general chemistry courses had lost their appeal. At this time, it was decided to have one general chemistry course and to have one lecture section, if a suitable place for this large class could be found. Jake Kleinberg, Chairperson of the Department, asked if I would teach this course, and it was decided that the course would have to meet in Hoch Auditorium.

Bill Bass, professor of anthropology, had been for several years teaching a very large introductory course in anthropology in Hoch at 10:30 on MWF. He had an overhead projector and a movable screen about 10 feet square for his teaching aids. I obtained permission to use this same equipment, but what was I going to do if I wanted to do a demonstration? There was an electrical outlet in the floor but no access to water or drain. The cavernous nature of Hoch would probably take care of obnoxious fumes, and the EPA was not in existence!!

So, in the fall of 1966, Chemistry 21

with about 650 students met at 11:30 on MWF in Hoch. Problem No. 1 was the logistics of getting over 1,000 students in anthropology out of Hoch and about 650 students into Hoch in the 10-minute period between classes. After that problem was partially solved, the lighting under the balcony was tackled. The lighting in the north end of Hoch, under the balcony, was so poor that students had difficulty reading a book or an examination paper. After about a year and a half, fluorescent lights were installed and this eliminated the lighting problem. The Chemistry Department had a small, movable lecture table built that had a sink with a 2-gallon bottle under it for the drain, a hand pumped faucet connected to a 2-gallon supply of distilled water, and there was provision for several electrical outlets. This was a real improvement because lecture demonstrations could be set up before class and then the table was wheeled into place just before class and the mess removed after class.

After a year or two in Hoch I decided that there was no easy way to get to know the students. So, with the blessing of the department, I decided to take "mug shots" of all the students. This was done by my going around to each laboratory section and taking a picture of each student while they held their name printed on a piece of adding machine paper in front of them. I would carefully study the names and faces of 15 to 20 students before going to class. Then, I would try to locate some of these students before class actually began. These were the students that I called on that day! What a shock to be in a large class and to have the professor call on you by name! Furthermore, sitting in the back of the room was not safe because the cord to my chest microphone was long enough to reach anywhere in the room.

Giving short quizzes presented a problem. However, by preparing two or three similar quizzes on different colored paper and having these different quizzes staggered and counted before class, Bob Evans and later Susan McAfee (the Receiving Clerks in the department who were assigned to help me with demonstrations, etc.) and I could distribute quizzes to over 700 students in less than 45 seconds. Collecting the completed quizzes was a greater problem because some students always claimed they needed more time.

Over the 17 years that I taught in Hoch Auditorium, I think I was fortunate in not having any major disruptions or tricks pulled on me. Oh, yes, a dog or an occasional pigeon would be present, but I never had a "streaker" or some group come into my class unannounced. Maybe, I was lucky by retiring in 1983!

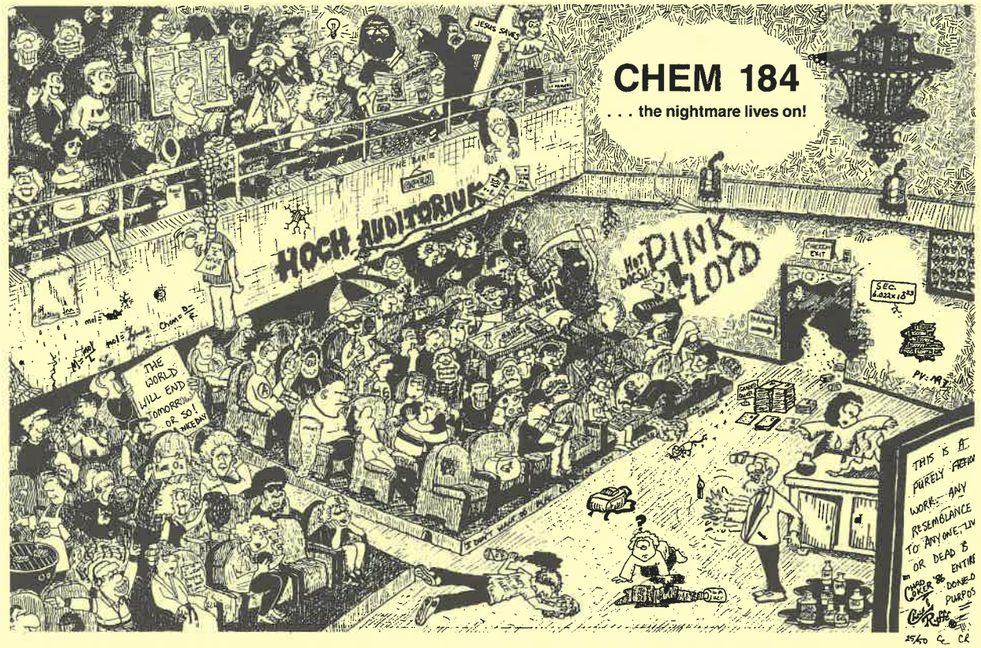
Yes, teaching a large class in Hoch Auditorium presented challenges, but in spite of the disadvantages, I believe that most students felt that they were not being cheated. Hoch Auditorium was a barn and certainly not an ideal location for a general chemistry class. However, I got used to the place, and, after a couple years, I rather enjoyed trying to interact with the students in this less-than-ideal setting.

Even though I had been retired 8 years, on June 15, 1991, when lightning apparently hit Hoch Auditorium and fire completely destroyed the building, I felt a great loss. Hoch had literally become a teaching home and now it was gone. I did not weep when I went to see the ruins, but I must admit there was a distinct twinge of sadness. I had fun and many pleasant associations in Hoch and now the building was no more.

Chemistry faculty who have taught classes in Hoch Auditorium during the past 25 years include Professors Bricker, Burgstahler, Carlson, Engler, Everett, Givens, Harmony, Huyser, Kleinberg, Landgrebe, Lata, Reynolds, and both Barbara and Dick Schowen.

In March of this year, Governor Joan Finney announced that $18 million will be allocated to rebuild Hoch Auditorium over the next three fiscal years. Plans for the new auditorium currently include a 1000-seat lecture theater plus one or two 500-seat lecture theaters. Also, some space will be allocated for offices and for use by the Anschutz Science Library.

[Historical data were obtained from files in the University Archives and from the book **The Years on Mount Oread** by Robert Taft, former Professor of Chemistry. Information regarding the fire was extracted from the **Journal World**, June 16, 1991. Photographs were copied from those on file in University Archives and University Relations.]



Cartoon drawn by Chad Coker and Chris Ruffé, students in Earl Huyser's CHEM 184 Class in 1986.

ALUMNI NEWS

1921-1930

Gerald W. Lindberg (B.A., 1928), employed for many years in the Great Lakes area in the steel and auto industries, spent the last 10 years of his professional career as an engineer on the Apollo Program (the shot to the moon) at the Kennedy Space Center. He has been retired since 1972 and resides with his wife in Winter Park, Florida.

Merrit E. Roberts (B.A., 1929; M.S., 1931; Ph.D., 1937) sent the department a most interesting letter detailing his professional life and how his education at KU had influenced the directions that his professional career followed. Although he started his academic work in the Engineering School, he soon became interested in chemistry, owing to the influence of teachers such as Dr.Brewster, and in bacteriology after taking courses with Dr. Cora Downs. This background gave him a job in 1930 with the Royal Serum Company in Kansas City. After about a year, he returned to KU to earn his Masters and Ph.D. Degrees working with Dr. Dains and taking courses with Dr. Downs leading to a minor in bacteriology. During his graduate years, he worked with the Kingsely Laboratories and, after receiving the Ph.D., joined the Lederle Laboratories. In both of these organizations he was largely concerned with research involving vaccines and serums. During World War II, he worked in Walter Reed Hospital in Washington, D.C., then for two years at the National Research Council. He then joined the Cutter Laboratories in Berkeley, California, and finally to Aerojet General where he was involved in a biological warfare project.

After retiring, he served as a consultant to Aerojet and then spent ten years researching and publishing the Roberts genealogy. He and his wife now reside in Lopac, California, and are very active, she in local affairs and he in gardening, pursuing his interest in history, and, among other things, serving as a docent for the local Spanish Mission.

Among the memories of his undergraduate days at KU, Dr. Roberts recalls the evening that he and a friend climbed up the scaffolding at the time that Hoch Auditorium was being constructed and left their initials in the fresh plaster at the top of the arch over the stage.

Wayne E. White (Ph.D., 1930) is retired and living with his wife in Fort Smith, Arkansas. In the 1930's, he served as an instructor at Western Reserve University. He developed an interest in fluorine chemistry while at the Aluminum Research Laboratories and then spent two years as professor of chemistry and physics at the American Institute in La Paz, Bolivia. Upon returning to this country, he devoted his research to the discovery of new inorganic fluorine compounds while associated with Ozark-Mahoning Co. in Tulsa, Oklahoma. Among the compounds developed in his work is sodium monofluorophosphate, which is used extensively as a fluoride additive to toothpaste. He remembers with feelings of gratitude his days as KU and his association with the Kappa Chapter of Alpha Chi Sigma.

1931-1940

Joseph F. Deck (Ph.D., 1932) taught chemistry at Santa Clara University in Santa Clara, California, for 55 years, chairing the department for 32 years. After 50 years of teaching at Santa Clara, he was awarded a Doctor of Science degree by that university. His current duties are concerned mainly with counselling.

1941-1950

John A. Norris (B.A., 1942) retired at the end of June, 1990, after forty six and a half years working as an analytical spectroscopist, the last 15 years at the National Institutes of Standards. After retirement, he and his wife moved from Gaithersburg, Maryland, to Green Valley, Arizona. John is still professionally active serving as a consultant to the Analytical Section of the Chemistry Department at the University of Arizona as well as teaching at

the Arizona State Modern Industrial Analysis Course and at the ASTM Emission Spectroscopy Analysis Courses. He is hoping to attend the 50th reunion of his class this spring.

Edwin N. Windler (B.A., 1943), after retiring from Phillips Petroleum Company in 1981, returned with his wife Nancy to Sweeny, Texas, where they resided from 1947 to 1974. Their time is spent, in addition to various community and church activities, traveling here and abroad as well as skiing in Colorado, although a planned hip-replacement surgery may curtail some of the skiing. Two of his sons and a son-in-law are M.D.'s and a third son an MBA.

Jean Mansur (B.S., 1946) worked for several years in the midwest before joining the Food and Drug Administration in Washington as a chemist in 1957. She also obtained a law degree from George Washington University in 1961. At the time she retired from the FDA in 1985, she was Deputy Assistant Director for Regulatory Affairs, an office which developed regulations for the manufacture, approval and marketing of both new drugs as well as some "not so new drugs." Much of her work was directed toward the agency's implementation of the Drug Efficacy Study. This work involved review of drugs already on the market after having been approved on the basis of safety. She now resides in Potomac, Maryland.

Earl Barney (B.S., 1946; Ph.D., 1950) has retired from his position as Manager of Toxicology Services of CIBA-GEIGY's Environmental Health Center in Farmington, Connecticut. Earl was involved in the design of the Center, which was built and operated originally by Stauffer Chemical Co. and acquired by CIBA-GEIGY in 1988. He was the local manager from the time it opened. Earl and his wife will be moving to Carson City, Nevada, to be nearer their children who both reside in California. Since 1985, Earl has been a member and chairman of the Regional Advisory Council of Tunxis Community College in Farmington and this spring received the Trustees Award from their Board of Trustees.

Earl's memories of Hoch Auditorium include taking well-proctored examinations in Physics I and II in Hoch as an undergraduate and covering all of the KU basketball games during the winter of 1944-45 when he served as sports editor of the *Daily Kansan*.

John F. Dittman (M.S., 1949) was employed as a member of the engineering staff of Eagle-Picher Industries starting in 1952 and served as director of battery research and development from 1962 to 1965. During the period of 1966-68, he was associated with the Apollo Program and since 1969 he has been involved in manufacturing engineering. He has published articles and has patents in the area of battery manufacture. Currently he is residing in Seneca, Missouri.

Bob Hazlett (Ph.D., 1950) and his wife Margaret continue to live in Alexandria, Virginia, after his retirement from the Naval Research Laboratory in December, 1987. Bob still consults on fuels and is the author of a book entitled "The Thermal Oxidation Stability of Aviation Turbine Fuels" which was published by the American Society for Testing and Materials in December, 1991.

Loren G. Hepler (B.S., 1950) took early retirement from his position as Professor of Chemistry and Chemical Engineering at the University of Alberta, but continues research and writing. He was honored by a 28 paper symposium on thermodynamics in science and technology at the 46th Calorimetry Conference in August, 1991, and by a special issue of the *Journal of Chemical Thermodynamics* to appear in mid-1992.

1951-1960

Robert Y. Heisler (Ph.D., 1952) retired in 1985 after 33 years at Texaco's Beacon Research Center. After a couple of years as a financial planner, he and his wife moved to Vincentown, New Jersey, where they are enjoying retirement, the New Jersey seashore in the summers and especially traveling to visit children and grandchildren.

Val Christensen (Ph.D., 1952) has

been with Point Loma College (formerly Pasadena College) in San Diego, California, for the past 32 years. Currently he is Vice President of Academic Affairs at Point Loma College, a liberal arts college with approximately 2300 students.

Kenneth L. Marsi (Ph.D., 1955) is completing his seventeenth year as department chairman at California State University, Long Beach, California. He was named Outstanding Alumnus by the Alumni Association of San Jose State University in 1991. Among Ken's memories of Hoch Auditorium are hearing Rise Stevens sing "Carmen," attending Franklin Murphy's inaugural speech as Chancellor of the University in 1951, and watching Clyde Lovelett, affectionately known at that time as the "Great White Whale of the Kaw," play basketball for KU in Hoch.

1961-1970

David E. Wetmore (M.S., 1961) received his Ph.D. in chemistry from Texas A&M in 1965 and then spent two years with Sun Oil Company in the Philadelphia area. He then commenced a career in teaching at St. Andrews College in Laurinburg, North Carolina. After 17 years at St. Andrews College, he and his wife moved to the mountains of North Carolina where David is Professor of Chemistry and Computer Science at Brevard College in Brevard, North Carolina. His wife Ruth is active as an archeologist, author and stamp collector.

Sheldon H. Cohen (Ph.D., 1962) has assumed new responsibilities becoming the first Executive Director of Planning at Washburn University in Topeka, Kansas. This position involves work with the Kansas Board of Regents, city and state government, business and public school systems as well as university assessment programs and proposing a planning system tied in with the budget process.

Victor Heasely (Ph.D., 1963) is a professor at Point Loma College in San Diego, California, where he is actively engaged in a very successful undergraduate research program. The success of this program is evidenced by the many grants awarded for the research and the dozens of publications authored by Vic and his students.

Donald DeMott (Ph.D., 1963) retired in March, 1991, from Chevron in San Roman, California. He moved to California from Houston, Texas, in 1985 when Gulf Oil Company was purchased by Chevron. Don came to Gulf in 1980 after many years with the Dow Chemical Company in Midland, Michigan, Tulsa, Oklahoma, and New Orleans, Louisiana. He and his wife are now living on Elk Lake in the Traverse City, Michigan, area where they are building a new home. Although ostensibly retired, he is actively involved in his community serving as Zoning Administrator for Whitewater Township, and professionally as business manager of a corporation called Mettalamics, which deals with inter-metallics, and as an oil field chemicals consultant.

John N. Marx (Ph.D., 1965), Professor of Chemistry at Texas Tech University in Lubbock, Texas, is the author of a commercial computer program used by libraries. The program, "Vernon's Label Printing Software," captures author, title and call number information from library on-line cataloging systems and formats it in versatile ways to be used on laser printers and to print book labels in large size.

Dennis G. Morrell (B.S., 1969) is currently Research Supervisor of the Catalysis and High Pressure Laboratory at the Hercules Wilmington Research Center. He is the Chairman of the Delaware Section of the American Chemical Society for the current year and has become very actively involved in math and science education at the primary and secondary levels. He represents Hercules in groups such as Quest for Excellence in Science Teaching and the Delaware Mathematics Connections Coalition.

In his letter Dennis relates the moving event he experienced in Hoch Auditorium on the day of Dr. Martin Luther King's assassination. Bill Cosby, who was giving a concert that evening could not continue but asked that everyone "stay calm and cool" and he walked off the stage as the audience left the auditorium in almost total silence.

Marion Hitchens (B.A., 1970) has returned to school to earn certification to teach mathematics (and later chemistry) at the secondary level. She and her children are living in Springfield, Illinois.

1971-1980

Jerry W. Nieft (M.S., 1970; Ph.D. in Education, 1972) taught chemistry for thirteen years before becoming associated full time with The Reorganized Church of Jesus Christ of Latter Day Saints as a World Church appointee minister. He spent seven years doing workshops, seminars, preaching and administrative work in Iowa, Wisconsin and Minnesota. He recently moved to St. Joseph, Missouri, to be Far West State President for the Church and where he continues his interest "in science and its increasing dialogue with the faith experience."

Fred Mandel (Ph.D., 1971) was a recipient of the Harry Goldblatt Award in Cardiovascular Research in September, 1991. He and four other researchers from The Upjohn Company were cited for their discovery of a chemical in the human body believed to be a key factor in the development of high blood pressure. Fred is a member of Upjohn's Cardiovascular Diseases Research Unit and received the award at the American Heart Associations Annual Fall Conference of the Council for High Blood Pressure Research.

Richard J. Steichen (Ph.D., 1971) joined the Goodyear Company in 1973 as a senior research chemist in analytical chemistry. In 1981 he was named manager of analytical services for the Chemical Division's Research and Development group. He became Manager of Environmental Engineering in 1984, Director of Analytical Services in 1986 and in 1989 was made Director of Goodyear's Polyester Division. Most recently he has been named Director of Technology Management for product supply for the company's global tire business.

Ann Cartwright (formerly Sherry Johnson, Ph.D., 1972) and her husband Lon recently adopted an infant daughter, Jenny. The family lives in Houston, Texas, where Ann is Head of the Chemistry Department at San Jacinto College.

C. Clair Claiborne (B.A., 1973) received his Ph.D. in Materials Science and Engineering from Northwestern University in 1984. He is married to Patricia Deal McKeel, who is a special education teacher in Greenville, Pennsylvania. They make their home in Sharon, Pennsylvania, and Clair divides his time between Sharon and Raleigh, North Carolina, where he is a Senior Scientist at the Transmission Technology Institute of Asea Brown Boveri Power T&D Company, Inc. which is located on the campus of North Carolina State University.

Dean E. Peterson (Ph.D., 1973) became Director of a newly created Superconductivity Technology Center at the Los Alamos National Laboratory Los Alamos, New Mexico, in March, 1992. The activities in the Center will be technically oriented and include work on both bulk and film superconductors.. The focus of the Center will be on technology transfer and the emphasis is on mutually beneficial interaction between the Laboratory and industry. The hope is that activities in this and other areas will help offset defense funding cuts. Already several industries have signed on and funding appears to be secure for at least two years.

Merle A. Nunemaker (B.A., 1973) has been practicing general dentistry in Kansas City, Missouri, for the past 15 years. He lives with his wife Vicki and their one and a half year old son Tyler in Belton, Missouri. A brother or sister is expected for Tyler in July.

Juan Francisco Pedraza Rosas (1971-1973) has been working with the Petroleum Columbia Institute since October, 1991, where he is coordinator of the Fluids Laboratory. His daughter Sonia Lucia, who is

licensed in modern languages, is teaching English at Bucaramanga Autonomous University and the Colombo American Center. His son Edgar Mauricio is studying medicine.

John Serratelli, a graduate student in chemistry in the 1970's, has been associated since leaving graduate school with the Texas Division of the Dow Chemical Company in Freeport, Texas, until last summer when he moved with his wife and two sons to Midland, Michigan. This spring, John became Director of the Computing and Information Technology Laboratory of the Dow Chemical Company.

David A. Crews (M.D., 1975) is an anesthesiologist specializing in pain management. His wife, Elizabeth A. Eagle (M.D., 1975) is a radiologist specializing in ultrasound and mammography. They live in Greensboro, North Carolina, with their two children, Meridith, 6, and Connor, 1.

Mark Staples (B.A., 1975; Ph.D, 1979) is currently working as a Senior Process Scientist in the Process Development Department of Biogen located in Cambridge, Massachusetts. He has a staff of five assisting him in the functions of drug formulation and analytical biochemistry of products that consist of proteins produced by recombinant DNA. In his letter to the department, Mark recalls the "enormous classes and graffiti covered lapboards" he encountered his undergraduate courses in Hoch Auditorium.

Jon K. Jones, M.D. (B.A., 1978) passed the certifying examination of the American Board of Internal Medicine and is practicing full time in Emergency Medicine at HCA-Wesley Medical Center in Wichita, Kansas. He is also a clinical instructor with the Department of Internal Medicine at UKSM-Wichita. He and his wife Pat live in Wichita with their four children, Kevin, 10, Kathy, 8, Kegan, 5 and Kristian, 2.

Lance Bare (B.A., 1979) is living in New Providence, New Jersey, with his wife Beverly and their three children, Alan, 5, Stephen, 3 and Kevin who was born in December, 1991.

Mark Sanders (Ph.D., 1980) is currently a supervisor in the Metabolism and Dispositions Department of the Hazelton Laboratories (an international subsidiary of the Corning Corp.). After receiving his Ph.D. at KU, Mark was a post-doctoral fellow in the Department of Oncology at the Mayo Clinic-Mayo Foundation in Rochester, Minnesota. He spent four years as an Assistant Professor of Medicinal Chemistry at the University of Utah and was Senior Biochemist at Sterling Drug, Inc. Mark lives in Madison, Wisconsin, the location of the Hazelton Laboratories in this country.

Fred G. Rojas (B.A., 1980) holds the position of Research and Analytical Chemist at Abbott Laboratories in North Chicago, Illinois. He has been with Abbott for four years and his work involves the analytical support of new products.

Thomas J. Munyon (B.S., 1980), has retired from the Navy and has achieved certification as a chemistry teacher at the secondary and middle school levels. After a temporary position teaching at the Florida Community College in Jacksonville, Florida, he is now teaching chemistry full-time at Fletcher Senior High School in Neptune Beach, Florida.

1981-1990

Robert A. Livingston (B.A., 1981) received his M.D. from Johns Hopkins and, after post-doctoral work in pediatrics, has joined the faculty at the John Hopkins University School of Medicine in April, 1991. Presently he serves as director of the Pediatric AIDS Clinical Trials Unit. His time is spent in both clinical research and patient care in pediatric AIDS. On December 18, 1991, he and his wife welcomed the arrival of their first children, Emily Clair and Carissa Elaine, who, after a short stay in the intensive care nursery are now home and "doing great."

John A. Aucar (B.A., 1982) graduated from the KU School of Medicine in 1986 and is

completing his residency in surgery at Michigan State University. In July he will be joining a practice with two other surgeons at the Fort Smith Medical Center in Fort Smith, Arkansas.

David R. Hardten (A.B., 1983, M.D., 1987) has finished his residency in Ophthalmology at the University of Minnesota and currently is the staff Ophthalmologist at the St. Paul Ramsey Medical Center in the Twin Cities. He will begin a one year Cornea and External Disease Fellowship at the University of Minnesota this summer.

Paul C. Trulove (A.B., 1983) received his Ph.D. in analytical chemistry from the State University of New York at Buffalo in 1991. His wife completed the work for her Masters in Education from the same school. They have moved, with their three children Katie, Maggie and Matthew, to Colorado Springs, Colorado, this past summer. Paul (who is still a Captain in the Air Force) has been assigned to The Frank J. Seiler Research Laboratory at the US Air Force Academy where he is doing research on ambient-temperature molten salts.

Douglas McBain (Ph.D., 1983) and **Carla Dittman McBain** (M.S., 1984) are living with their sons Arthur, 4, and Andrew, 1-1/2, in Norton, Ohio. In 1989, after five years with Pittsburg Plate Glass, Doug moved to GenCorp Research in Akron, Ohio, and on May 1, 1992, was promoted to Research Scientist in Plastics and Composites. Carla received the Ph.D. in Polymer Science from The University of Akron in 1988 and then joined the research staff of ICI-Glidden where she now is a Senior Chemist. Carla served as an Exchange Scientist in 1990 and spent 25 days in the ICI laboratories in England.

Calvin W. Mordy (M.S., 1986) received his Ph.D for Oregon State University in 1991. Currently he is one of team of oceanographers from the University of Southern California that is obtaining a time-series of microbial biomass accumulation, growth rates and productivity in the antarctic pack-ice eco-systems. Calvin and his colleagues are part of joint effort on an antarctic ice flow involving ten U.S. and ten Russian scientists. Calvin's expertise is in measurement of the effects of ultra-violet light on ocean life at different depths and temperatures.

Kathleen (George) Moats (B.S., 1987) is working as a banking consultant for Midwest Management Consultants, Inc. She and her husband, Ryan DeLacy Moats III, an M.S. graduate in Electrical Engineering (1987), are living in Middletown, New Jersey.

Angela M. Meyer (A.B., 1989) is in her third year as a medical student at the University of Kansas School of Medicine-Wichita, Kansas.

Keith Combrick (Ph.D., 1990), after finishing his post-doctoral work at Ohio State University, has joined the Medicinal Chemistry Department of Bristol-Myers Squibb in Wallingford, Connecticut. He and his wife Mary are the proud parents of Anna Elizabeth Combrick who was born January 17, 1992.

Jeff Needels (M.S., 1990) is a stability systems analyst for Sandoz Pharmaceuticals in Lincoln, Nebraska. In this capacity he is responsible for overseeing the stability of experiments, perform data analysis and for developing new methods for automating these functions. He and his wife Sharon have a daughter, Elizabeth, born September, 1990. In his letter to the department, Jeff recalled the times he spent proctoring freshman chemistry examinations in Hoch Auditorium but the long grading sessions that followed seemed to have made a more lasting impression on him.

Gail Olmsted Heidari (M.S.Ed., 1990) moved with her family to Champaign, Illinois, in August, 1991, after living in Lawrence for almost fifteen years. Her husband is with the Illinois State Geological Survey. Gail has joined WIC in the Champaign-Urbana Health District as a nutritionist.

1991-

Wei Wu (B.S., 1991) is a graduate

student in chemistry at the Massachusetts Institute of Technology in Cambridge, Massachusetts, where he is working in Professor JoAnne Stubbe's laboratory.

DEATHS

Robert L. Gill (Class of 1941), died on January 9, 1992.

John K. Fincke (B.A. 1939, M.S. 1941) died January 9, 1992, in Chapel Hill, North Carolina. He spent 36 years with the Monsanto Company, principally in research and development. His accomplishments included developing several chemicals used in the manufacture of rockets and re-entry vehicles. He held 18 patents for his discoveries. He was married to Barbara Allen (B.F.A., 1939) who died in 1980. He leaves a wife, Leigh, of Sydney and London, a sister Helen Fincke (B.A., 1940), and four children.

INDUSTRIAL ASSOCIATES MEETING

by Joseph Heppert

A second meeting of the Chemistry Department Industrial Associates Program (CDIAP) was held on November 1 and 2, 1991. A massive snowstorm blanketed areas north and south of Lawrence with the result that roads from Oklahoma were snow-covered and icy, and the Twin Cities airport was under several feet of snow. Consequently, the anticipated number of industrial participants was reduced to five. Despite the weather, the program went forward, and participants heard about the fiscal challenges facing the College administration from Associate Dean Sally Frost-Mason, the state of departmental resources, research, and recruiting efforts from Rich Givens, Peter Hierl, and Tom Engler, and the involvement of the department in special initiatives to raise our research-competitiveness from Ted Kuwana. Emeritus Professor Rey Iwamoto was actively involved both as a participant and coordinator of this meeting.

The bulk of the first day was taken up with short research presentations by representative faculty and with an informal after-dinner discussion of obstacles facing the department as it approaches a challenging set of ten-year goals. The second day of the meeting was set aside to gather feedback from the industrial participants. The majority of their concerns focused on the ability of the Department to establish priorities, set tangible objectives to further those priorities, and develop a more formal mechanism for evaluating progress toward our objectives. The faculty plans to resolve these issues prior to June, when a formal agenda for the next CDIAP meeting will be established. After polling the active industrial participants, we have scheduled the next meeting of the industrial associates for September 18-19, 1992. Please contact me if you are interested in further information about this program.

NEW FACULTY

The past year has seen the addition of two new members to the Department of Chemistry faculty and next semester we shall welcome a third new member to the faculty. In the Fall, 1991, Dr. Robert Bowman joined the faculty as a member of the Physical Chemistry Division. Dr. Krzysztof Kuczera came to KU at the beginning of the Spring semester and holds a joint appointment in the Chemistry Department and Department of Biochemistry in the area of computational chemistry. In the Fall, 1992, Cynthia K. Larive, who will be receiving her Ph.D. from the University of California, Riverside, will join the faculty as a member of the Analytical Division.

Robert Bowman joined the Department in September, 1991, after about three years of post-doctoral work at the California Institute of Technology in Pasadena, California. His Ph.D. degree was earned at Columbia University in New York City in 1988 as were the Master of Philosophy (1987) and Master of Arts (1984) degrees. He did his undergraduate work at Johns Hopkins University in Baltimore, Maryland, receiving the B.A. degree in 1983.

Dr. Robert Bowman

Bob's research interests are in the area of ultra-fast reaction dynamics and he is currently constructing a "state-of-the-art" laser system to study processes that occur in the femtosecond (10^{-15} second) time range. With this instrumentation, he plans to study the excitor dynamics of small semiconductor particles in order to understand their non-linear optical properties and interesting quantum effects. Other work will involve the study of intramolecular energy transfer in isolated gas phase molecules. Bob already has two graduate students working with him and his program is well under way.

After spending his entire life on either the East Coast or the West Coast, Bob is finding Lawrence a very enjoyable place to live. He is unmarried, a state which he claims to be happy with at this time. He has interests in music and sports and is planning to take up wind surfing this summer on Clinton Lake.

Krzysztof Kuczera received a M.Sc. degree from the Department of Physics, Warsaw University, Warsaw, Poland, in 1980 and a Ph.D. from the Institute of Physics, Polish Academy of Sciences, Warsaw, in 1985. From 1986 to 1991, he was a Research Associate and Post-doctoral Fellow in the Department of Chemistry at Harvard University. His scientific interests lie principally in the field of computational studies of macromolecular structure and dynamics. The main focus of his research is the use of the detailed structural, kinetic and thermodynamic information provided by computer simulations to improve the understanding of the biological functions of macromolecules such as enzymes and nucleic acids.

Dr. Krzysztof Kuczera

Krzysztof has a wife and a two year old daughter, both of whom are still in Warsaw but will be joining him in Lawrence in the near future. His wife Joanna also is a computational biochemist with a Ph.D. from the Institute of Biochemistry and Biophysics of the Polish

Academy of Sciences in Warsaw. Krzysztof and his wife share interests in classical music, books and hiking. His wife is also very interested in sewing, French cuisine and French culture in general. Krzysztof includes among his other interests swimming, sailing, bicycling, bridge and reading mystery novels, especially those written by Agatha Christie.

Cynthia Larive received the B.S. degree from South Dakota State University and M.S. degree in inorganic chemistry from Purdue University. Her Ph.D. thesis research at the University of California (Riverside) is in the area of analytical chemistry. Her research interests are focused on bioanalytical applications of Nuclear Magnetic Resonance Spectroscopy. *In-vivo* NMR studies of cell cultures,

Dr. Cynthia Larive

erythrocytes and biological fluids will be used to follow drug metabolism and monitor changes in metabolism which result from disease. Other areas of investigation include the examination of small molecule-protein binding and the conformational analysis of peptides and nucleic acids. In particular, studies of conformational changes induced by interactions between molecules will be explored. For example, small molecules may have one conformation in aqueous solution, but adopt a completely different conformation when bound to a protein such as a cell-surface receptor, an antibody or an enzyme. An additional major objective is the development and implementation of new NMR techniques.

Cindy and her husband Jim along with their two daughters Erin, 7, and Megan ,5, will be moving to Lawrence in August and are quite excited about returning to life in the Midwest.

FACULTY NEWS

Ralph Adams decided to retire from active duty in the Department as of July, 1992. He plans to retain a small portion of his lab and continue the human brain neurochemistry and schizophrenia studies. The greatest difficulty Buzz anticipates on retiring is parting with the 35 year collection of batteries, resistors, and gears that once were so important to modern electrochemical instrumentation.

Albert W. Burgstahler found teaching in Crafton-Preyer Theater in Murphy Hall during the spring semester to be an exciting and challenging experience. By the end of the Fall semester, a large screen and wide angle overhead projector became available in the theater, and with the help of Audio-Visual Services, Albert was able to show video tapes of various chemistry demonstrations, many of which he made himself. He also made great use of the audio resources and played tapes and CD's of various classical music selections to entertain the students before and after class.

His wife Patricia was named by Adam Hefty, a Lawrence High School senior who was one of three Kansans to receive a Presidential Scholarship this year, as the teacher who has the most positive influence on him academically. In June she will accompany Adam on the trip to Washington, D.C., to be with him at a special White House ceremony honoring him.

Daryle Busch. This academic year marked the fourth at KU for Daryle Busch, and he and Jeri are increasingly aware that the only problem with their move here from Ohio State is that it didn't happen earlier. Having been swept up in the spirit of EPSCoR, Daryle helped bring together a group of eleven faculty from about the state (Kansas State and Wichita State as well as KU) in a sub-proposal to emphasize chemical synthesis (in Kansas), especially in several aspects of supramolecular chemistry and macromolecular materials. For a person with the social instincts of a hermit crab, this was quite an expansive activity. The Third Quinquenniel Busch Reunion Symposium on Chelate Chemistry was held at the Great Lakes and Central Regional Meeting of the ACS in Indianapolis, last May. Approximately 40 research group alumni attended, many of whom gave research papers. Daryle participated in the First Hanford Workshop on Separations Science which constituted the first public meeting directed toward the goal of cleaning up the nuclear materials production site at Hanford, a monumental challenge to science, technology, and the National budget. He also served on the Advisory Committee for the Chemistry Division of the Oak Ridge National Laboratory in 1991. Among the several seminars given about the country, one was at the Southeast Regional ACS Meeting in Richmond, Virginia, a venue that allowed a brief visit with God-child Sharon Melson, daughter of Dean Gordon Melson, Wake-Forest University. Also in 1991, youngest daughter Kristine and grandson Vincent moved to Lawrence and brought sound, chaos and joy to the Busch home. A sad assignment was to speak at the memorial service for Daryle's thesis advisor, the renowned Professor John C. Bailar, Jr., of the University of Illinois; title, *O Teacher, My Teacher.*

Bob Carlson enjoyed visits from several of his former Ph.D. students in the past year. Trips out of Lawrence in the past year have not been possible because of the health conditions of his parents. He continues to be an active member of the Center for Bioanalytical Chemistry and has several research projects in that area. He still enjoys playing golf but was unable to play as much as he would have liked this past year.

Shih-I Chu continues his development of new theoretical formalisms and practical computational techniques for nonperturbative exploration of the structure, dynamics, and symmetries of atoms and molecules in the presence of intense and superintense laser fields. Several interesting new high-intensity phenomena being explored are: (1) production of short-wavelength coherent radiation (several hundred electron voles) from very high order harmonic generation (up to 60th order or more) processes; (2) chemical bond hardening and molecular stabilization in superintense laser fields. He and his group members are also interested in the exploration of the mystery of quantum chaos in highly exited states of atoms perturbed by strong magnetic fields, a phenomenon called "chaotic diamagnetism". During the past year, he has presented two plenary lectures at international conferences, one at Harvard University and one in Taiwan.

Tom Engler's research group continues to explore and develop new stereoselective reactions for organic synthesis and is supported by NSF, NIH, A.P. Sloan Foundation and Eli Lilly and Company. Recent efforts are focussed on enantioselective syntheses of biologically relevant molecules. In the last year, two students graduated from the group with Ph.D.s and both are presently postdocs (J. Reddy - Indiana and U. Sampath - Washington University, St. Louis). The group now consists of seven graduate students and two undergraduates and with some luck, two students should finish with their Ph.D. degrees and one with a Masters degree within the next few months. On a personal note, Tom and his wife Rachel have moved into a new house in Lawrence and are spending a considerable amount of time worrying about getting grass to grow.

Grover Everett enjoyed a respite from general chemistry during the fall semester when he taught a graduate-level special topics course combining crystallography with his favorite topic, NMR. In the spring, however, he returned to the undergraduates and taught the chemistry course for liberal arts students (CHEM 125) and coordinated a team effort to teach the regular general chemistry course

(CHEM 184). Each course had approximately 300 students. Grover continues his modest research efforts with supramolecular complexes and his activities in running, cycling, orienteering, and lap swimming.

Grover and his wife Carolyn are now true "empty nesters." Their daughter Susan is a graphic designer in Chicago, and their son Mark is in graduate school in astronomy at Ohio State. Carolyn teaches home economics at one of the junior high schools in Lawrence.

Richard Givens. The past year has been marked by several professional and personal "firsts." Among the most eventful were the invited lecture to the Japanese Society for Analytical Chemistry at the "International Congress on Analytical Sciences" (ICAS '91) in August at Makuhari-messe, Japan, and the plenary lecture at the IVth International Symposium on "Quantitative Luminescence Spectrometry in Biomedical Sciences" in Ghent, Belgium, in May. Both trips were first-time visits to those countries. The topic for both lectures was the mechanism and applications of the hydrogen peroxide/oxalate chemiluminescence reaction.

These two trips sandwiched the weddings of his second-eldest daughter, Beth to Jack Porter (a graduate student in Economics at MIT) and his youngest sister, Deborah, to Peter Heiss (a commercial artist at WVU). Beth also completed her undergraduate degree at KU (human biology) in May.

After such an eventful summer, returning to the chairmanship in the fall felt like a brief respite for the weary traveller. However, the Committee for the Reconstruction of Hoch met soon thereafter, ending whatever relaxation he was beginning to enjoy. Departmental duties and coordination of the arrival or searches for three new faculty filled any of the existing voids during the academic year. He looks forward to a less eventful year with the upcoming Midwest AACS Meeting as the next major event.

Finally, several trips to meetings in San Francisco and Newport Beach, California, Clearwater Beach, Florida, Woodshole, Massachusetts, Midland, Michigan, Marietta, Ohio, and Washington, D.C., afforded an opportunity to meet alumni and friends of the department along with the usual scientific and professional meetings.

As in the past, every other year is one of much less travel and more composition and writing. Two reviews, several manuscripts and a few proposals await his full attention as well as direction of the photochemistry-chemiluminescence group during 1992-3.

Marlin Harmony and his research group have continued their high-resolution studies in gas-phase molecular spectroscopy and molecular structure. Of particular note: due out later this year in *Accounts of Chemical Research* is a paper summarizing some six or seven years of research into a new method of obtaining high-quality structure from experimental spectroscopic data. The work began in Chapter 4 of Bill Taylor's Ph.D. dissertation and was continued by postdocs R.J. Berry, H.S. Tam, and J.I. Choe (who returned from Korea for 6 months as a NATO fellow). While continuing to keep busy in the summers as a co-director (with Dr. Barbara Schowen) of the NSF-REU undergraduate research program, Harmony and spouse Nancy always squeeze in a summer sojourn of interest. Last year, it was Europe (London, Germany, Austria, Switzerland)--this year it will be camping in Colorado, Utah and finally on to Grand Canyon. Finally, it should be noted the Dr. Harmony participated (along with professors K.B. Schowen, C. Lunte, and K. Bowman-James) in the first team-taught version (in memory) of freshman chemistry this past spring semester. Because of the destruction of Hoch by fire, the lectures were given in the relatively luxurious setting provided by the Union's Woodruff Auditorium.

Joe Heppert has graduated three Ph.D. students during the past year, Beth Thomas-Miller, Mike Milligan, and Steve Dietz. The focus of Steve Dietz's research, stereo controlled methathesis polymerization processes, has grown into a major emphasis in Professor Hepperts' group. Professor Heppert's older daughter, Jennifer, will enter kindergarten this year.

Earl S. Huyser had the opportunity

in the Fall semester of teaching the general chemistry (CHEM 184) in the Crafton-Preyer Theater in Murphy Hall. Although many promises had been made about having the theater ready for teaching by the beginning of the Fall Semester after losing Hoch Auditorium, most of these promises did not reach fruition until the end of the semester. In spite of some problems, the students met the challenges and it turned out to be one of the best classes in general chemistry he has had. In his research, he continues to determine the properties of free radicals (*e.g*, acidities, spectral characteristics, electron affinities, ionization energies) by means of *ab initio* molecular orbital calculations.

He and his wife Barbara still find driving through the mountains and deserts of the Southwest a fascinating and enjoyable experience. They have made two trips in the past year to that part of the country, one during the spring break to visit a son who is now living in Sierra Vista, Arizona.

Carey Johnson's research group has grown during the past year to a total of six graduate students and one postdoctoral associate. This group is active in experiments to study dynamics in proteins and peptides by time-resolved, as well as steady-state, laser techniques. This work is part of an emphasis on ultrafast spectroscopy at KU. A symposium on this topic is being organized by Marlin Harmony, Bob Bowman, and Carey Johnson, for next fall's Midwest ACS Meeting in Lawrence. Studies on the protein bacteriorhodopsin (a bacterial protein related to the visual protein rhodopsin) are continuing in Carey's research group, and new experiments are being developed to use spectroscopic hole burning (the idea is not to burn holes through objects with laser beams! rather, the "hole" is in the absorption spectrum) and Fourier-transform Raman spectroscopy.

The Johnsons (Jean is a math professor at Baker University) have a three-year old daughter. They try to take some time every summer for camping. Carey was promoted to Associate Professor last year.

Ted Kuwana serves as the Project Director on the state-wide Kansas Science Technology & Advanced Research (K*STAR) NSF Experimental Program to Stimulate Competitive Research (EPSCoR) program. A proposal was submitted to NSF in February requesting $4.5M funding over three years to support increased science and engineering (S&E) research efforts at KSU, KU and WSU. The State of Kansas approved matching funds for this program in the amount of $1.5M for FY93. The objective of this program is to enhance the scientific research capacity of Kansas' Ph.D. granting regents institutions, including human resource development and purchase of advanced research equipment. Several KU chemistry faculty are participants in the EPSCoR program. We are awaiting word from NSF about approval of the K*STAR proposal.

Ted continues to serve on the Board of Directors of the Kansas Technology Enterprise Corporation, a not-for-profit subsidiary owned by the state, whose mission of economic development is implemented by technology initiatives such as the funding of Centers of Excellence (*e.g.*, Higuchi Biosciences Center [HBS] and the Center for Bioanalytical Research [CBAR] at KU).

This summer marks the sixth year of the NSF sponsored MACRO-ROA program for research in bioanalytical chemistry by college teachers at KU/CBAR. The goal of the program is to stimulate college teachers and ultimately, to carry their enthusiasm back to the classroom so that more students will consider careers in science. When the group meets next fall, there will be thirty graduates from the program.

Ted and Dr. Yri A. Zolotov, Director, Kurnakov Institute of General and Inorganic Chemistry of Moscow, U.S.S.R. were recognized at the opening ceremony of the International Congress on Analytical Chemistry in Tokyo, Japan on Monday, August 26, 1991. This conference was sponsored by the International Union of Pure and Applied Chemistry, and the Japan Society for Analytical Chemistry.

In awarding the medal and honorary membership to the Japan Society of Analytical Chemistry, Dr. Atsushi Mizuike, president-elect of the Japan Society for Analytical Chemistry, read the citation recognizing Ted's con-

tributions to analytical science, specifically in the areas of electroanalytical chemistry, spectroelectrochemistry, chemically modified electrodes, and biological electron transfer and analysis.

Jack Landgrebe and his wife Carolyn have finally achieved grandpa and grandma status with the birth of a granddaughter, Julia Elizabeth Holsapple, to their daughter and son-in-law who live in Danville, Indiana, on February 6, 1992. Don't be surprised to see a brown station wagon travelling between Lawrence and the Indianapolis area a little more frequently in years to come. Jack finally sent the more than 500 pages of manuscript of the fourth edition of his lab text and should see it in print by late Fall, 1992, with a 1993 copyright. Currently, he is keeping out of mischief by continuing as Project Manager for a $600,000 ($300,000 from NSF) Research Facility Remodeling Project which is beginning to happen and should be completed by the end of Summer, 1993, and by co-chairing (with Rich Givens) the 27th Midwest Regional Meeting of the American Chemical Society to be held in Lawrence on November 3-5, 1992.

Alfred Lata is serving again as Co-Chair of the Committee on Computers in Chemical Education of the ChemEd Division of ACS. In that capacity, he spoke to the Georgia Regents Advisory Committee on Chemistry meeting in Macon, Georgia, this past March, and at a Computer/ChemEd regional meeting at CWRU in Cleveland last June. Recently he was the chemistry member of the National Evaluation Panel for EDUCOM to select outstanding instructional software. This was the third time that he has served on this panel. He is looking forward to the Biennial Conference on ChemEd in Davis, California, this August; he will present several papers, and co-chair the symposium *Integrating Computational Chemistry into the Curriculum*.

Craig Lunte continues to work on the improvement of the Instrumental Analysis course with Ted Kuwana and George Wilson. Dr. Allen Hiebert of Tabor College has made significant improvements to the laboratory part of the course as a visiting faculty member for the past year. Allen has been "instrumental" in developing flow injection analysis experiments as part of a grant from NSF. Craig was introduced to the pleasure of general chemistry this spring as part of the team (along with Barbara Schowen, Kristin Bowman-James, and Marlin Harmony, and capably lead by Grover Everett) teaching CHEM 184.

Craig's research group continues to gain momentum on the use of microdialysis for *in-vivo* sampling. Several new projects have begun during the past year. One involves sampling of solid tumors in order to study potential new chemotherapeutic drugs. A second new project is the study of pharmacokinetics of a drug that may alleviate the memory loss associated with Alzheimer's disease. A third project is to couple microdialysis sampling with behavioral studies in an attempt to provide chemical insight into learning and memory deficits associated with mental retardation. This final project is in collaboration with Dr. Richard Tessel of the Department of Pharmacology and Toxicology and Dr. Susan Lunte of the Center for Bioanalytical Research. Craig bid a sad but proud farewell to Dennis Scott who received his Ph.D. and Howard Hendrickson who received his M.S. this past year. Both remain in Lawrence, Dennis a postdoctoral position with Dr. Val Stella in Pharmaceutical Chemistry and Howard in a position at the Center for Drug Delivery Research.

The Third Annual Lunte Group Camping Extravaganza to Colorado occurred with its usual lack of significant planning and coordination. Plans are underway for this years adventure.

Kristin Bowman Mertes changed her name to Kristin Bowman-James on January 11, 1992, when she married Gary James. Gary and his brother own James Gang Automotive, an outstanding (and quite reasonable) auto repair shop in north Lawrence. As a result, Kristin now has two new step children, Aaron and Lee, ages 18 and 15. Kristin met Gary as a result of her extracurricular drag racing activities. Gary races a 1967 Camaro, while Kristin drives a bright red rear engine dragster. So far they haven't raced against each other (which is probably for the best). This summer they plan to move to a house on 10 acres in the country in order to accommodate and work on their collection of vehicles.

The Bowman-James research effort is now taking place in a newly renovated laboratory. Even most of the benches (some pre-1955 vintage) have been replaced. Professor Kunjian Gu from the Shanghai Institute Materia Medica, who worked on the carboxypeptidase project from 1985-88, has returned and is working on a project just funded by NSF on the *de novo* design and synthesis of proteins. Dr. Shaoyung Lee, who was a postdoc at Lawrence Berkeley Laboratory, has also recently joined the group. With the new equipment and remodeled space, research is speeding along.

This is also the last year that Kristin is serving as Secretary of the Inorganic Division as well as on the Metallobiochemistry Study Section at NIH. After these time-consuming efforts are over, she and Daryle Busch will be making plans for the upcoming XVII International Symposium on Macrocyclic Chemistry to be held in Lawrence, June 13-17, 1994.

Barbara Schowen. Many of Barbara Schowen's activities continue the same as reported here last year. Teaching remains a major focus. In addition to teaching CHEM 624 (Organic I; 140 students), she was one of four people who team-taught CHEM 184 this Spring in Woodruff Auditorium. This was a new experiment in which each team member (others were Craig Lunte, Kristin Bowman-James, and Marlin Harmony) taught a 3-4 week unit. All would have been impossible without the superb organizational skills of Grover Everett who kept everything running smoothly. Although some of the students said they would prefer a single-lecture format, enough said they enjoyed the team approach to have made the venture worthwhile. Barbara has finished a three-year term as member of the College's Committee on Undergraduate Studies and Advising and is beginning a stint as representative to the Faculty Council (a portion of University governance). She is also a member of two new University groups: the Council of Academic Advisers and the University Honors Council. The latter is involved with overseeing the University's programs and scholarships for honors students. Last April, she served as co-chair of a two-session symposium on Research in the Undergraduate Curriculum held at the ACS Meeting in San Francisco. She and Marlin Harmony are continuing their work as organizers of the Department's NSF-sponsored REU (Research Experience for Undergraduates) Site. This summer 12 students from colleges in 9 states will be doing research in the Department along with many of our own undergraduates. Barbara and Dick's daughters are still both in New York City. Susana is finishing her second year as a physical chemistry graduate student at Columbia; Sarah graduates in May with a B.S. degree in Elementary Education from NYU and is job hunting.

Richard Schowen. During the academic year, Dick gave lectures at the International Isotope Symposium in Toronto, the Biochemistry Graduate Students Symposium at KU, Oread Laboratories (where Ozzie Wong is flourishing), Wichita State University, the Scripps Institute in San Diego (where Dale Boger holds an endowed chair), Ohio State University (The Warner-Lambert Lecture; Dick saw Rick McCreery and Don Witiak but missed John Swenton), and Gordon Research Conference on Isotopes in the Physical and Life Sciences (organized by John Hogg), Washington University in St. Louis, and Northwestern University in Evanston, Illinois. He continues to serve as associate editor of the JACS for biochemistry and bioorganic chemistry, as the co-editor with Prof. Alfred Schellenberger of the University of Halle in Germany of a series on *Enzyme Chemistry* for VCH Publishers, and as a consulting editor for the Oxford University Press International Monographs in Chemistry. Dick also consults for Merck, Sharp and Dohme where he sees Ross Stein (postdoc, 1980s), Su Wu Huskey (postdoc, 1980s) and Phil Huskey, who is an assistant professor at Rutgers-Newark). At KU, Dick was co-chair of the committee that selected the new Vice Chancellor for Research, Graduate Studies and Public Service (Andrew Debicki, a University Professor of Spanish Literature). In July, Dick's title will

become Summerfield Professor of Chemistry, Biochemistry and Pharmaceutical Chemistry.

In the summer of 1991, Barbara and Dick visited Sweden (where Dick gave a plenary lecture at the European Symposium on Organic Reactivity) and Japan (where they were foreign guests at a special symposium on evolution of matter at Tsukuba University). In Japan, they also paid a sentimental visit to Kyoto and the Kise family, where they lived in 1969. Masahiro Kise, who was a postdoc with Dick and Ed Smissman in the early 1970's, had just become research director of the Nohon Shinyaku Company. They saw much of Hisashi Fujihara (postdoc in the 1980's) and his family in Tsukuba, including his daughter Megumi Katharine, Barbara's namesake and also Sig (postdoc with Cal Vanderwerf in the 1950's; 30th Anniversary visiting professor at KU in 1980) and Akiko Oae in retirement in Osaka. Sig's "retirement" includes editing several journals and presenting his pottery and painting at an exhibition.

George Wilson. A research milestone was reached in George Wilson's research group when his French colleagues successfully implanted a miniaturized glucose sensor in a human and demonstrated its ability to continuously monitor blood glucose concentrations. A new project has been launched this year involving the stability of methionine in peptides and proteins, which are becoming increasingly important in the pharmaceutical industry as therapeutic agents.

George was elected Chairman of the Electrochemistry Commission of IUPAC and serves along with colleagues Daryle Busch, Paul Gilles, and Ted Kuwana in this important organization. George is now organizing a Gordon Conference on Bioanalytical Sensors to be held in March 1993 in California.

For his "summer" vacation George, wife Beverley (Asst. Professor of Business at KU) and son Stephen (a sophomore at KU) went to Aspen, Colorado, where George tried downhill skiing for the first time. Stephen, sensing that this event was going to be newsworthy or at least entertaining, put it on video tape. It's probably too amusing (or maybe tragic) for "America's Funniest Home Videos."

Ph.D. HOODING CEREMONY

Thirteen Ph.D. candidates received their degrees at Commencement this year. Particularly pleasing was the fact that seven of them were on hand to participate in the Hooding Ceremony which was held in Crafton-Preyer theater in the morning of Commencement Day (May 17, 1992). Those who were able to return to the campus for this ceremony are listed along with their thesis advisor who, in each case, participated in the actual placing of the Ph.D. hood on the candidate:

W. Alexander Reiter (Bowman-James)
Mark Allen Nachtigall (Carlson)
Umashanker Sampath (Engler)
Rominder Singh (Givens)
Steven D. Dietz (Heppert)
Dennis O. Scott (Lunte)
Yanan Zhang (Wilson)

Others receiving the Ph.D. degree this year but unable to attend the commencement exercises were:

Peter Capalla (Adams)
Michael William Weber (Kuwana)
Gholamhossein Hajipour (Schowen)
Jayachandra Perumalswamy Reddy (Engler)
Michael Lawrence Milligan (Heppert)
M. Elizabeth Thomas-Miller (Heppert)

EMERITUS FACULTY

William J. Argersinger, Jr. reports that 15 months after his surgery for a malignant meningioma and subsequent radiation he returned home on May 10, 1991, where he continues a daily program of physical therapy. He also reports that his progress is slow but steady. He gets about in his wheel chair and, with a cane and assistance from wife, Marnie, can walk short distances and even do stairs.

Bill is grateful for all the cards, letters, visits, and other indications of concern from

colleagues, former students, and staff--friends all. These expressions of friendship have been a large factor in his progress. Bill and Marnie are looking forward to a trip east in June to his 58th and Marnie's 52nd high school reunions in upstate New York. They will also visit children in Baltimore and Gettysburg.

Clark Bricker continues to enjoy his retirement by mixing a little in-service teaching of Elementary and Middle School teachers (through the School of Education) with manual labor associated with the finishing of the basement in his new duplex. Brick and his wife, Ann, try to visit their children at least once a year and this requires trips to Texas, Pennsylvania and California. He recently received his 50-year membership pin from the American Chemical Society.

Arthur W. Davidson. At the age of 96 years, Davy is still getting around, although with the aid of a walker. He remembers well the years that he taught general chemistry in Hoch Auditorium. He is living with his daughter in North Kansas City, Missouri, and, as he writes to us, "keeps abreast of what goes on at KU and the rest of the world."

Paul Gilles. After retiring from the classroom and committees in May, 1990, a year earlier than required, Paul has been coming to the Department every day he is in town. At a reduced level, he continues his activities of preparing research articles, trying to keep abreast of developments in high temperature chemistry, and acting as Secretary for the Inorganic Division of the International Union of Pure and Applied Chemistry (IUPAC). His wife Helen, who retired from private practice of pediatrics several years ago, practices as a part-time Federal Employee in the Indian Health Care Service working at the Haskell Health Care Center in Lawrence and in similar one in Holton, some sixty miles away.

During the past year they hosted the Midwest High Temperature and Solid State Chemistry Conference in June and then travelled to Moscow to attend the International Symposium on Chemical Thermodynamics for which he served on the International Program Committee. On this trip they were accompanied by his research supervisor Leo Brewer and Leo's daughter Gail, and the four of them also visited Leningrad. In August he and Helen attended the IUPAC General Assembly in Hamburg and visited some of Helen's relatives in Sweden. They also made a pleasure trip to Greece in May and plan to attend an IUPAC meeting in Rome in September, and spend a few weeks in Minnesota in between.

Reynold T. Iwamoto. Travel, fishing, home projects, a lot of reading, bike rides out into the countryside, and more fishing have provided Rey Iwamoto with an enjoyable and most satisfying first year of retirement. Happily, with retirement there has been an upturn in memorable fishing experiences, the most notable being catching and releasing a 4-1/2 ft, 45-lb (est.) world-class musky in Pipestone Lake in Ontario last year. A special thrill was landing the fish on ultralight tackle, but the best part was helping the big fish recover and seeing it swim away. Since then, the musky has been seen cruising around the dock area where it was released. Along with the many ups were some downs, especially the humbling fly-fishing experience this spring on the renowned Letort and Yellow Creeches streams near Carlisle, Pennsylvania. Even the special flies that he learned to tie this winter weren't of any help.

Rey Iwamoto with facsimile of world-class musky he caught in Pipestone Lake

Jacob Kleinberg shows up at the Department about three times a week. He maintains an office and never misses the faculty coffee time where he can still be relied upon to participate in all discussions with the same enthusiasm and sense of humor he has always possessed. As they have done for over four decades, Jake and his wife Jane will spend part of the summer (most of July) at the Los Alamos National Laboratory in New Mexico where Jake will serve as a consultant and Jane will revel in examining the culture and art of that area.

Charles A. (Bert) Reynolds has found that retirement is even more fun than teaching. He keeps busy travelling, fishing, playing with one or more of his eleven grandchildren, and refining his baseball game on his computer. He hopes that his former students and colleagues will look him up at 2209 Hill Court when they visit Lawrence.

IN MEMORIA

Ernest Griswold

On Saturday, May 16, Professor Emeritus Ernest Griswold passed away at the age of 86. He is survived by his wife Marvel, whom he married on June 6, 1931, three daughters and three sons, 11 grandchildren and seven great-grandchildren.

Ernie received the A.B. degree in Chemistry from KU in 1927 and the Ph.D. degree in 1934 under the direction of Arthur Davidson. He taught at the University of South Dakota from 1931 to 1947 and then joined our faculty. His teaching of courses in general, inorganic and physical chemistry was characterized by the clarity of his lectures and their superb organization. He directed an active, productive and significant research program in the areas of salt effects and reactions in non-aqueous solvents and conductance and ion-pair equilibria in such solvents.

He was a gentle, kind, unassuming, and talented person. We shall miss him.

NAME LECTURES

Professor Richard E. Smalley, Hackerman Chair in Chemistry, Rice University, presented **The Arthur W. Davidson Lecture** on March 17, 1992. His lecture was entitled, *C_{60} and the Emerging Carbon-based Nano-technology.*

The Frank Burnett Dains Lecture this year was given by Yoshito Kishi, Morris Loeb Professor of Chemistry, Harvard University. The lecture, presented on November 18, 1991, was entitled, *Gleanings from the Polytoxin Field.*

PROFESSIONAL STAFF

INSTRUMENTATION DESIGN LABORATORY

The Instrumentation Design Laboratory has gone through big changes in the last year. First, the personnel: **Tom Peters,** a fixture in a couple of stints over the past several decades, has elected to move to half-time so that he can devote more attention to his family and his home in the country. That half-time has been filled by **Ric Roggero**, another good programmer; Ric has been a grad student in Entomology. **Jon Mericle** (BSEE from Tulsa) joined our staff as an electronics engineer.

Ken Ratzlaff continues to teach CHEM 711 in the spring (the old *Electronics for Scientists* course, now expanded into computers and other new domains). There are other activities besides working on and supervising lab projects such as editing a book on charge coupled devices in scientific applications. On the home front, Ken's wife, Virginia, is retiring as an attorney for health reasons; they spend much of their free time with the Lawrence affiliate of Habitat for Humanity. Two sons will be at Bethel College in Newton this fall.

Second, the new digs: Even now, a construction crew is at work on our new home on the sixth floor, SE corner (the former science library space). We are really excited about the opportunity for a work area designed to our needs. The move is slated for August 1. That's about 1-1/2 years behind schedule, so we moved into an area carved out of the back of the 6th floor storeroom. (Whoever said that could be habitable?...Were they right?)

Third, new and exciting work: We have a good time with new projects and new technologies. We're heavily into Ethernet, LANs, C, C++, fast 486s, Windows... More importantly, we've had opportunity to try new projects with picosecond lasers, rats, NMR, insect tracking and sound measurement, and Flow Injection Analysis to name a few. Some NMR software has reached the market, and the Lab had been very pleased to contribute software for the last three NSF/ILI grants received in the department.

X-RAY CRYSTALLOGRAPHY LABORATORY

Fusao Takusagawa, Director of the X-Ray Crystallography Laboratory continues to challenge the fastest service possible. Crystal structures are determined less than 24 hours after submission of the crystals to the lab. His "hobby research" is carried out with four research colleagues from four different countries. You will see one of his molecular structures on the cover illustration of the *Journal of Molecular Biology* (Volume 225, June, 1992). His son (8th grade) and daughter (6th grade) love contests such as Mathcount, Geography Bee, and Spelling Bee. Although they won the first places in the regional contests, they did not become the state champion this year. So, they will try again next spring.

Larry Seib has moved from K-State to KU. His major responsibility is to repair and maintain our X-ray equipment. Although Larry is still a big "Wild Cat", he will shout "Go Jayhawk" soon since he married a lovely Jayhawker last June.

MASS SPECTROSCOPY LABORATORY

The Mass Spectroscopy Laboratory is undergoing significant changes in its operations. **Charlie Judson** retired 3 years ago and a new director, **Todd Williams** took over. **Bob Drake** passed his 20 years of service landmark a year ago and recently decommissioned the CH5. This instrument was installed in 1970 and Bob was hired to run it. The reason for retiring the CH5 was to make room for the installation of a new tandem hybrid. Bob has expanded his talents to include being a practitioner of the "art" of FAB analysis. The lab is running a wider variety of samples than in the past and is serving a wide range of investigators. Todd is busily searching out new collaborative projects and has taken to bringing his eldest (Zack, 7, Aaron, 5) to help in the lab.

Although Charles Judson retired as Director of the Mass Spectrometry Laboratory in July, 1989, he still comes to work in the lab regularly, helping to keep the instruments running properly, trying to optimize procedures and doing research on methods which he never had time to do when running the lab, and attempting to resurrect two old quadruple instruments from around 1970. When not at the lab, he works on writing the history of commercial mass spectrometers.

BIOCHEMICAL RESEARCH LABORATORY

Su Narayanan, became Director of the Biochemical Research Service Laboratory (BRSL) in August, 1990. She received her Ph.D. from the University of Compaiegne in France in 1985, did postdoctoral work at the University of Cambridge for a year and then worked as a postdoctoral student with Professor Ronald Borchardt (School of Pharmacy) from 1986 to 1988. She worked in research and development in J.T. Baker in New Jersey before returning to KU as the Director of BRSL. Su is married and has one son, 4-1/2. Her husband is a Professor in the KU School of Business.

DIRECTOR OF LABORATORIES

Jack Rose, Director of Laboratories, recently completed 30 years of employment with the department as Director of Laboratories and has been using the event to reflect upon where the organization has been and where it should go. Many significant changes have occurred in the department since he came to KU. It is hard to believe but thirty years ago there were no regulations on the use of chemicals or their disposal. There were no OSHA or civil rights regulations. Responding to these regulations has had a significant effect on the operation. Prior to the time he retires, Jack intends to finish computerizing our accounting, to implement a chemical tracking system, and reorganize the stockroom and service staff group in preparation for his successor. Still with Jack are Orlena Williams and Evelyn Goodrich. Evelyn is in her 33rd year as a main-stay of the operations of the office.

Many changes have occurred in the period since Jack joined the Chemistry Department, the most notable for him personally is that his two little girls have grown into mature women, one living in San Francisco and one living in Washington, D.C. He and his wife Martha are the proud grandparents of two grandsons.

NUCLEAR MAGNETIC RESONANCE LABORATORY

The Director of the NMR Laboratory, **David Vander Velde**, had a greater involvement with undergraduate laboratories this past year as a result of the NSF Instrumentation and Laboratory Instruction (ILI) grant received by the department last year. This grant was used to purchase an automatic sample changer for the General Electric QE Plus NMR spectrometer for use particularly in the sophomore organic laboratory; while this sounded good on paper, it was tried in practice for the first time this year without knowing how well it would work in practice. In fact, it was very successful; each student received high-quality carbon and proton spectra on one of their unknown compounds, and gained a greater appreciation for the usefulness of NMR spectroscopy. The instrument was also used interactively by the physical chemistry laboratory students in both semesters.

David continues to work with numerous faculty members and graduate students on research projects, both inside and outside the department, principally using the 500MHz instrument. His wife Jane and children Claire, Paul, and Tom continue to look forward to the day when Dave can run the instrument from home on evenings and weekends.

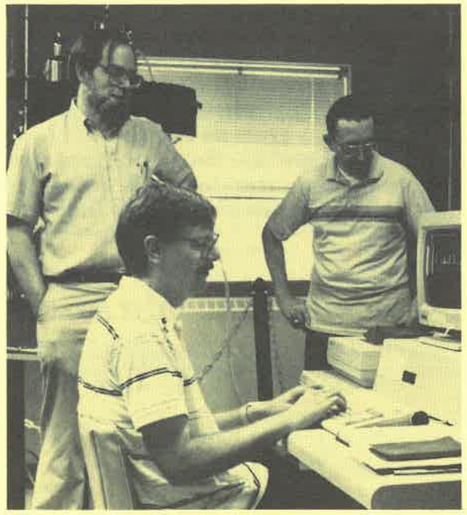
INSTRUMENT AND LABORATORY IMPROVEMENT GRANTS

by Jack Landgrebe and Craig Lunte

In the past several years, the Department of Chemistry has been awarded three grants by the National Science Foundation to be used to improve the teaching laboratory facilities in organic, physical and analytical chemistry. For the most part, the monies granted by NSF were matched with funds from the University. The effort in obtaining these funds from the NSF was spearheaded by Drs. Jack Landgrebe, David Vander Velde (Nuclear Magnetic Resonance Laboratory), Ken Ratzlaff (Instrument Design Laboratory), Craig Lunte and George Wilson.

The objective of two of the funded proposals was to enhance the curriculum in the undergraduate organic and physical chemistry courses, which are largely populated by chemistry majors and other pre-professional students in the sciences and engineering. Funds from the first grant were used to purchase two new Fourier-transform infrared spectrophotometers for both the organic and physical chemistry laboratories and to purchase and fabricate a laser spectrometer system for the physical chemistry laboratory. Since the instruments were installed, they have been used by approximately 600 undergraduate students. Although

several new experiments were introduced into the curriculum, the most important impact of this new instrumentation has been to raise the level of enthusiasm and interest of the students in the affected courses. We expect this instrumentation to significantly enhance our undergraduate curriculum for many years and to help us to influence more of our bright and capable students to enter careers in science.



Drs. Ratzlaff, Vander Velde, and Landgrebe with programmed NMR.

Funds from the second grant were used to enhance the undergraduate organic and physical chemistry laboratory curriculum with regard to the applications of modern, high-field nuclear magnetic resonance spectroscopy. Because the organic chemistry courses involve as many as 250 students in the semester in which NMR is taught, there was a special challenge as to how a single high-field instrument could be effectively used. The funds were used to purchase a robotic sample changer for an existing 300 MHz NMR instrument and to develop a software simulator for the menu system and some of the actual functions of the instrument (a GE QE-300 spectrometer) together with the purchase of seven 386-type PC clones.

Use of the beta-version of the simulation software began in the fall of 1991 in the Physical Chemistry Laboratory course with great success. In this case the program was used to train the students prior to their actual use of the instrument. Beginning in the spring of 1992, the large Organic Chemistry Laboratory used the simulator software to obtain a pseudo-hands-on experience at running both a carbon and proton sample and plotting the final spectrum. Actual samples of each student's unknown were then run on the instrument overnight with the help of the robotic sample changer. We hope to expand this limited experience even more in the coming year with the anticipation that about 300-350 students each year will be effected by this improved laboratory experience.

The third grant made it possible to implement flow injection analysis (FIA) experiments in the new undergraduate Instrumental Analysis Laboratory course, Chemistry 636. FIA is eminently suited for pedagogical demonstration of several central analytical concepts. Sample handling, dispersion, derivatization, kinetics, separation, and detection can all be

Drs. Hiebert and Lunte examining FIA system.

demonstrated by FIA. FIA allows phenomena such as derivatization, reaction kinetics, and dispersion to be "seen" as well as quantitated as the output of a "black box."

The hardware for three complete FIA systems has been purchased or is on order. Each system consists of the liquid pumping system, sample introduction valve, various manifolds, a detector, and a data acquisition and analysis system. We currently have available two spectrophotometers and one fluoride ion-selective electrode detector. A fluorescence and electrochemical detector are on order. Software for data acquisition and analysis has been written by Ken Ratzlaff. An operational version is currently in use, with updated versions being planned based on student experience.

Dissemination of the FIA experiments to other institutions is also underway. Dr. Allen Hiebert of Tabor College has spent the last year at KU helping to implement the FIA experiments. When he returns to Tabor College he will take one of the FIA systems for use there. Collaboration with Dr. Hiebert on the development of FIA will continue after he returns to Tabor College and the work will ultimately be reported in the *Journal of Chemical Education.*

HONORS BANQUET

The Chemistry Department Annual Honors Banquet was held on May 2, 1992, in the Student Union. As in the past few years, Al Lata served as master of ceremonies with his usual adeptness in this capacity. Among those attending were several guests of the Chemistry Department from various areas of the University, the students receiving honors (see below) and many of the parents of these students. In addition to most of the current faculty, many of the Emeritus Faculty were also present, namely Rey Iwamoto, Bert Reynolds, Paul Gilles, Jake Kleinberg and Bill Argersinger. The speaker was another Emeritus Professor, Clark Bricker. Brick's talk, entitled *Sermon on Mount Oread*, included, along with information about his many years of teaching general chemistry in Hoch Auditorium, some of his concerns of the present state of science education in this country.

In his remarks to the audience with regard to the "state of the department", Rich Givens, the Department Chairman, pointed out that the Chemistry Department has reached an impressive goal with regard to its graduate program. Not only did the year 1990 mark the centennial of the graduate program in chemistry at KU, but at the present time, approximately 440 students have earned the Masters Degree and about 560 the Ph.D degree. Sometime in the coming year, the Department will award its 1000th graduate degree.

Listed here are the awards presented and the students receiving these honors for their outstanding work during the past academic year.

UNDERGRADUATE STUDENT AWARDS

GENERAL CHEMISTRY
(Students with outstanding records)

Rina Bansal
Jennifer L. Collins
Luke T. Evans
Huong Lam
Amy Bryan
Brad J. Condon
Brandon Johnson
Joanna M. Tran

THE OWEN W. MALONEY SCHOLARSHIP
(Students with the best records in General Chemistry)

Charity A. Hastings
Phu Van Troung

ORGANIC CHEMISTRY

One-semester course
Julie C. Ellis

Two-semester course
Nahid Ghanadian
Fang Zhao

ANALYTICAL CHEMISTRY
(For superior achievement)

Kathleen Kelly

THE TAFT AWARD IN PHYSICAL CHEMISTRY

One -semester course
Rhonda Yantiss

Two-semster course
Sing Hwa Chong

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

Sing Hwa Chong

THE SORG SCHOLARSHIP
(A first-year student at K.U. planning a career in chemistry)

Jeanne Van Cleave

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

Matthew P. Meyer

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

Tiffany Anne Grant

THE SNYDER AWARD
(An upperclass major in chemistry who has demonstrated considerable promise)

Margaret Ruddy

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

Jessie Pak Dill

SPECIAL HONORS TO GRADUATING SENIORS FOR SUPERIOR PERFORMANCE
(Seniors planning a career in medicine)

Christopher Dunkin
Brent O. Hale, Jr.
Rhonda K. Yantiss

AMERICAN INSTITUTE OF CHEMISTS AWARD
(A national award)

Michael W. Ducey, Jr.

ALPHA CHI SIGMA AWARDS
(To chemistry and chemical engineering majors)

John A. Morgan
En-Jia Yang
Julia Anna Peebles

GRADUATE STUDENT AWARDS

THE H.P. CADY AWARD
(Excellent performance by a first-year graduate students)

Karina Kwok
Sangryoul Park
Jiunn-Ren Roan

OUTSTANDING FIRST-YEAR TEACHING ASSISTANT

D. Philip Colombo, Jr.

THE RAY Q. BREWSTER AWARD
(Teaching awards to advanced graduate students)

Mohammed Hasmat Ali
Mike Hadwiger
Luis Morales

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

Songlin Xu

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

Mike Letavic

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

Kim Mitchell

THE SNYDER AWARD
(A graduate student of considerable promise)

L. William Kueper, III

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

Nancy Eilerts
Rita Palsmeier
Sanaullah

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.

Name_____

KU Degree and Year Received_____

Present Position_____

Address (If any change)_____

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PERSONAL NEWS (Please include any professional and personal information that you would like to appear in the Newsletter.)

COMMENTS ON NEWSLETTER (Content, format, etc.)

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