

Jayhawk Chemist

The Newsletter of The Chemistry Department
at the University of Kansas

A publication for alumni and friends - established 1966

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BAILEY HALL: NATIONAL HISTORIC CHEMICAL LANDMARK



On Saturday, April 15, 2000, Bailey Hall was officially designated as a National Historic Chemical Landmark by the American Chemical Society during a ceremony that also celebrated the building's 100th birthday. An article in the last *Jayhawk Chemist* (October 1999, Issue 33) described the events that led to the 1905 discovery of helium in natural gas by Professor H. P. Cady and Dr. David McFarland, faculty members in the Department of Chemistry, while working in their laboratory in Bailey Hall. The Landmark award commemorates that discovery.

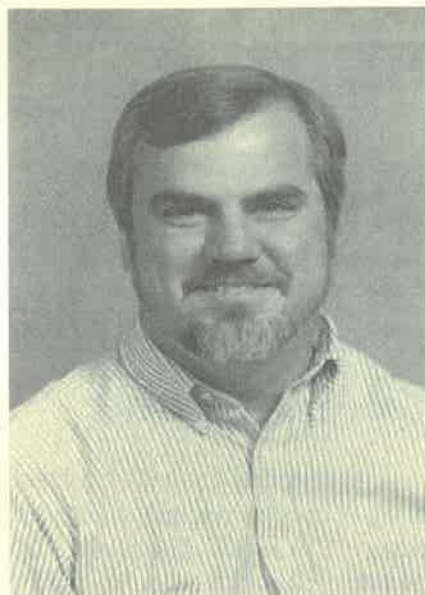
A series of activities during the day included: an exhibit in the lobby of the

Spencer Research Library entitled "Bailey Hall's First 100 Years"; a formal program in Budig Hall followed by a reception on the lawn outside Bailey Hall; a banquet at the Kansas Union that was preceded by an excellent concert played on several ethnic and modern flutes by Mrs. Betty Austin Hensley, niece of Professor H. P. Cady; and an outstanding evening lecture by KU Professor Donald Worster entitled "Servant of the Commonwealth: Bailey Hall and the Idea of the Useful University." Professor Worster's lecture was presented in the auditorium of the Spencer Museum of Art and was followed by a reception in the museum foyer.

The exhibit in Spencer Research Library was created jointly by Mrs. Carolyn Bailey Berneking, who is a granddaughter of Professor E. H. S. Bailey, one of KU's first chemistry professors and after whom Bailey Hall was named, Mrs. Kathleen Neeley, who is a librarian at Spencer, and Grover Everett, who is an emeritus professor of chemistry. The display featured the many contributions of Professor Bailey and included photographs and articles contributed by the various departments or schools that have occupied Bailey Hall since 1900: chemistry, pharmacy, chemical engineering, biochemistry, and education. Items of original laboratory apparatus and data used by Cady and McFarland in their historic discovery of helium in natural gas were shown and explained. It is anticipated that a portion of this exhibit will eventually be put on permanent display in Bailey Hall.

The ceremony in Budig Hall began with a welcome by Chancellor Robert Hemenway who recognized members of the Bailey, Cady, and McFarland families who were in the audience. This was followed by a talk entitled "The History of Bailey Hall: An Architectural Overview" presented by Mr. Craig Patterson, a local architect and past president of the Historic Mount Oread Fund. Then Professor Daryle Busch, a KU faculty member and current President of the American Chemical Society formally presented the National Historic Chemical Landmark plaque to Chancellor Hemenway. The 16 X 20 inch bronze plaque will eventually be installed in Bailey Hall. Dr. James Bohning, a chemist and member of the National Historic Landmarks Committee, used historical photographs in his narration of events that eventually led to Cady and McFarland's historic discovery. His presentation was entitled: "The Gas That Wouldn't Burn". The program was closed with a series of demonstrations by Grover Everett who illustrated the properties and uses of helium.

--Grover W. Everett



Notes from the Chair

Dear Chemistry Alumni and Friends:

Warm, belated greetings from the KU chemistry department. It has been an active year in Malott Hall. We have welcomed four new faculty members, have another new faculty member arriving in the Fall of 2002, and are actively searching for a second new faculty member also to start next Fall. Professor Joe Heppert has been appointed to head a new Science Education Center. Finally, Professor Kristin Bowman-James, after six years of hard work, has stepped down as Chair and I have assumed that position.

When I took the chair of the department this summer, I presented a set of goals to the faculty. I would like to share some of those goals with our alumni and friends. We are now actively pursuing these goals, and we need your support.

Let me begin by observing that the future of the department will be determined by the people who are part of it: our faculty, staff, students and alumni. This gives me reason for great optimism, as these people provide us with a strong foundation upon which to build.

We have recruited several outstanding junior professors and have successfully retained our senior and mid-level faculty in a competitive market, in spite of our financial limitations. We have attracted a strong group of graduate and post-doctoral students who pump new life into the department with their research and enthusiasm. Our undergraduates are outstanding, with many going on to very successful careers in the sciences and into excellent graduate programs. Our support staff is dedicated and hard-working in their management of the daily functions of the department. We have dedicated alumni and friends who are deeply committed to supporting our department. I believe our efforts to build an even stronger department will be a success because of the strength of this foundation.

My primary objective as chair is to continue the academic and professional growth of the department. A primary measure of the intellectual vitality of the department is its stature in the scientific community. In keeping with the Chancellor's goal of improving KU's overall rankings, we are striving to rise from our second-quartile place in the National Research Council rankings to the first-quartile tier of chemistry departments. We can reach this objective by pursuing two goals. The first goal is to increase the size of the department in both the number of faculty and students. We have been able to recruit excellent faculty and students but need significantly more in order to be competitive with top ranked Chemistry departments. The second goal is to make innovative changes to our academic programs so that the department remains intellectually vital and stimulating. Schools ranked in the top quartile have two traits in common: a critical mass of high quality faculty and students and an intellectually invigorating academic environment.

We have specific implementation plans to achieve these goals. We plan to hire additional faculty at an average rate of two per year to achieve a department size of at least 30 faculty. We also plan to provide at least one named professorship for a senior faculty member. We want to increase financial support for our students by providing additional scholarship funds and increasing our funding for research assistants and teaching assistants. To recruit and retain top faculty and students, the department must be an attractive place to work and study. Therefore, we plan an extensive review of our curriculum so that we may design new courses and areas of study which reflect modern scientific interests and employment demands.

If we are to successfully implement such improvements to KU chemistry and to secure a top-tier ranking for our program, we need resources. Like many other state-supported universities, we depend heavily on the generosity of our alumni and supporters to meet the financial demands of enhancing and improving our department. We are very fortunate that a group of dedicated alumni have come forth to serve on CADCom, the newly created Chemistry Alumni Development Committee.

As the CADCom article (see page 5) details, the chemistry department is undertaking, as a part of the major Kansas University Endowment Association campaign to be announced this fall, our own \$2.4 million fund drive. CADCom, under the guidance of Professor Ted Kuwana, is working to create a new alumni outreach program and to enhance opportunities for our graduates and friends.

Reaching the funding goals we have set means that we can then achieve our objective of becoming a top ranked, highly competitive chemistry department. Our own faculty have already pledged over \$170,000 to kick off our fund drive and our CADCom members have made major commitments of both financial gifts and their time to support the department.

We welcome contributions of any amount and deeply appreciate the financial support of our alumni and friends. Please be sure, if you are solicited for a gift and you choose to give to chemistry, that you make a note on your contribution form or inform the telephone solicitor that you wish for your gift to benefit the chemistry department.

I look forward to a very successful future for the chemistry department. I am delighted to serve as chair and I, as well as our faculty, students, staff and alumni look forward to enhancing what is already an exciting, progressive chemistry department. Your support is imperative to our mission, and I am grateful for all that you do to help us improve your alma mater.

Sincerely,

Professor Craig Lunte

Farewell

Dear Alumni and Friends of the Department,

After six years as Chair, it is time to hand over the leadership of the Department to my enthusiastic colleague, Craig Lunte. For me the Chairmanship has been an enlightening experience, and I value the many opportunities I have had to represent our department. In my farewell column to you as past Chair, I would like to highlight some of the important changes that I have seen the Department make over the last six years. It goes without saying that progress is built on the solid foundations laid by the previous Chairs, including Rich Givens, Marlin Harmony, and my staunch "right hand man" and current Associate Chairman of the Graduate Program, Jack Landgrebe, as well as those before.

When I became Chair, it became evident to us that our department was entering a volatile era. A number of our colleagues who arrived in the late 1950s and early 1960's, had expressed interest in retiring. While we would certainly miss their many contributions to the department, this would pave the way to hiring a number of new junior colleagues with outstanding promise. It is interesting to note that a significant number of hires would be the first such opportunity for our department in the last three decades. A number of our faculty members were first appointed in the 1950s and 1960s; very few, myself and Shih-I Chu, in the 1970s; and a few more, including three distinguished professors, Ted Kuwana, George Wilson, and Daryle Busch (in chronological order) in the 1980s.

In 1995, after a series of retreats, a plan was drafted which took into account both future directions for the department with regard to research areas, based on the state-of-the-art science, as well as teaching needs. The plan was to hire two to three new faculty members each year over the next several years. Areas of emphasis were to be biophysical, bioorganic, bioinorganic, bioanalytical, the latter including mass spectrometry, as well as education, theory, and synthesis. I am pleased to say that after the four years that this plan has been in effect,



we are approximately on target, with new faculty in the bioinorganic, bioorganic/synthetic organic, theoretical, and biophysical/surface, educational, and most recently mass spec areas. Since 1995, a total of eight new faculty members have joined our ranks, with one to come next August, and of these nine, four are women. These new faculty members are outstanding colleagues, and have been very successful in garnering research funding as well as external recognition.

There have also been a number of initiatives in the various undergraduate and graduate programs. We now have four honors courses, Chem 185 and 189 in the general chemistry sequence; Chem 628 and 630 in the organic chemistry sequence. We also have a new course in environmental chemistry, Chem 690, that is co-listed with the Environmental Studies Program. The latter is an effort that was spearheaded by Cindy Larive (Chemistry Department) and Val Smith (Environmental Studies Program). Another new course is Chem 668, a senior laboratory course in inorganic chemistry.

Joe Heppert and Janet Robinson have also contributed immensely to our educational mission, acquiring over \$4 million dollars in funding for various initiatives, including an outreach program to the Kansas City and Topeka schools. In recognition of Joe's ability, Chancellor Hemenway has appointed him as the Director of the Center for Science Education.

At the undergraduate level, two new emphasis options were adopted for the B.A. or B.S. degrees, Environmental Chemistry and Biological Chemistry, largely due to the effort of Barbara Schowen. Courses are available on the web, via an Instructional Materials Home Page, an undertaking by Joe Heppert and Ken Ratzlaff. In addition, our department has worked closely with the Department of Physics and Astronomy to implement the Chemistry/Physics Computer Resource Room, with 20 computers and associated software and printers. This effort was another major undertaking of Ken Ratzlaff and the Instrument Design Lab.

With the appointment of Janet Robinson to our faculty two years ago, an entirely new area for our department was created, Chemical Education. There are now two new degree options at the graduate level, M.S. and Ph. D. degrees in Chemical Education. A number of students are currently following that option.

There are many efforts ongoing in the department including a search for the distinguished position in honor of Ralph Adams, much needed renovations, and the dream of a new science education building. As I relinquish the Chairmanship, it is with pleasure, since I have had the privilege of being involved in the growth that we have achieved in the last six years and recognized the importance of team effort, and the dedication of our faculty members. It is really they who are responsible for the state of the department today, and I thank them.

--Kristin Bowman-James

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CHEMISTRY ALUMNI DEVELOPMENT COMMITTEE PROMOTES ALUMNI OUTREACH AND DEVELOPMENT



Gus Manning, Ted Kuwana, and Don Leedy discuss CADCom strategies at their March San Diego meeting.

When the KU Chemistry alumni reunion was held at the spring ACS meeting in San Diego, a new facet in alumni outreach and development was implemented. CADCom, the Chemistry Alumni Development Committee, met for the first time and began reviewing goals and strategies to strengthen the Department and increase alumni support.

The primary goal of the committee is to assist the Department with its goal of joining the top 25% of national chemistry department rankings. After comparing the Department to those which are currently ranked in the top quarter, CADCom and the faculty worked together to set specific goals to achieve such a prestigious ranking. The most critical goals are improving student recruitment and retention, providing exceptional financial support for quality students, and increasing the number of chemistry faculty.

Co-chairing CADCom are Donald W. Leedy (Ph.D. 1968) and Charles "Gus" Manning (Ph.D. 1969). Leedy is recently retired from Procter and Gamble, where he orchestrated a high-visibility public relations and marketing campaign for one of the company's most promising pharmaceuticals. Manning serves as president of Assay Technology, a highly successful company of his own creation. Both Leedy and Manning, former students of Professor Ralph "Buzz" Adams, are long-time supporters of the Department.

Professor Barbara Schowen, director of the University Honors Program, serves as a departmental representative on CADCom. Schowen's primary goal is to enhance support for the undergraduate chemistry program. This goal includes providing financial support for undergraduates to conduct research and recruiting Chemistry's most outstanding undergraduate majors into the graduate program.

Schowen, who has been involved with providing research opportunities for undergraduates for 21 years, estimates that 85% of KU Chemistry undergraduates who are provided support to pursue research opportunities go on to careers in chemical science. In 1957, KU Chemistry participated in a pilot project which became the NSF URP (Undergraduate Research Participation), and then REU (Research Experiences for Undergraduates). "Our department has had a continuously running REU site since 1988, which is something of a national record," says Schowen.

Many of them return to KU to pursue graduate work: two undergraduate chemistry majors who enrolled in the graduate program were recently awarded Self Graduate Fellowships, KU's most prestigious graduate award.

Professor Paul Hanson is also a departmental member of CADCom. Hanson notes two major goals for the graduate program: improved recruitment and enhanced financial support for graduate students. "For KU to break into the top 25% of national chemistry departments, we must increase our numbers by recruiting and retaining more high quality graduate students," says Hanson.

Financial support is a major factor in the recruitment and retention of graduate students. While KU offers teaching and research assistant stipends and fellowships (including two new, 2-year fellowships, the Bailey Fellowship and the Berger Fellowship, both implemented in 1998), funding limitations make it difficult for KU to compete with other universities which offer more, and larger, stipends and fellowships to graduate students.

CADCom is also working toward developing an alumni outreach, marketing and development program for the Department. Building on the strengths of past alumni reunions and a strong alumni support base, the Department is

implementing programs specifically designed to help keep alumni in touch with one another and up to date on department news and events. This fall, in conjunction with the Kansas University Endowment Association's major university-wide development campaign, Chemistry will kick off its departmental fund drive.

Working with CADCom, the Chemistry Department has set a \$2.4 million goal for the upcoming fund drive. \$1.8 million is earmarked for the graduate program, with \$ 0.6 million of funds raised to benefit the undergraduate program. Chemistry faculty, emeritus faculty, alumni and friends of the Department have pledged pre-drive gifts of over \$170,000 to jump-start the fund drive and to encourage others to join them in their generous support. Some junior faculty members are supporting the fund drive by participating in a payroll deduction plan, pledging an amount of each paycheck to the chemistry fund drive. This commitment by the faculty and other supporters, prior to the fund drive itself, is exceptional.

Alumni outreach is a major component of the CADCom agenda. Under the guidance of Professor Ted Kuwana (Ph.D. 1959), the Department has held regular alumni reunions in conjunction with ACS national meetings. Kuwana, who chaired the Department's initiative leading to the formation of CADCom, has been reviewing recent alumni activities in preparation for upcoming events. He works closely with the CADCom co-chairs on fund drive issues, improving alumni relations and establishing regular communication with chemistry graduates.

As a step toward enhancing alumni relations, the Department has created a website specifically for chemistry alumni. The site features information about alumni events and an alumni information page where chemistry graduates may look for information on friends and classmates and submit information about themselves: <http://alumni.chem.ku.edu>. Alumni are invited to visit the website and submit contact and personal information, as well as suggestions and comments. Other CADCom members include Keith Darlington, (Ph.D. 1963), Douglas Neckers (Ph.D. 1963), and Bob Stutz (Ph.D. 1961). Assisting chemistry and CADCom in their endeavors are Linda Luckey (Dean's office - College of Liberal Arts and Sciences), Terri Knoll Johnson (Kansas University Endowment Association), Rich Kaler (Kansas University Endowment Association), and Amy

Beecher Mirecki (public relations consultant). Many chemistry faculty have devoted a great deal of their time and energy to support CADCom and the Chemistry fund drive.

The CADCom members, chemistry faculty and friends and supporters of the Department are undertaking a major task by setting high educational standards and fund drive goals for the Department. The Department is deeply indebted to all of the individuals who have offered their support to promoting KU Chemistry. Their commitment is strong and with the support of chemistry faculty, alumni and friends, these goals are not only attainable, but surpassable.

—Amy Beecher Mirecki



NEWS FROM THE KANSAS CENTER FOR SCIENCE EDUCATION

In September 1999, Chancellor Hemenway established a Task Force composed of faculty and staff from the College of Liberal Arts and Sciences, Engineering, and Education to examine the state of science education and research in science education at KU. The Task Force was charged with making recommendations to improve KU's ability to contribute to science learning among our undergraduate students and all citizens of Kansas, and to contribute to science education scholarship on the national level. Rich Givens and Joe Heppert were privileged to co-Chair the Task Force, which submitted a report and recommendations to the Chancellor in May 2000. The report's principal recommendations fell into three major categories:

- 1) Modernizing aspects of science and mathematics curricula at KU,
- 2) Fostering cooperation between the School of Education and the College of Liberal Arts and Sciences to improve mathematics and science teacher preparation at KU, and
- 3) Working with units that bring the wonder and excitement of science to the citizens of the state through community outreach efforts.

In response to one of the Task Force recommendations, the Chancellor has established an interdisciplinary Center at KU to foster scholarship in science education. The Chancellor asked Heppert to direct this Center with the understanding that the

unit would focus on building collaborations with state government, regional colleges and universities, regional and national foundations and federal granting agencies to establish KU as a national center for scholarly activity in science education.

Over the past nine months, we have engaged in a wide range of grant activity to obtain support for center programs. A few ongoing initiatives include:

Undergraduate Education. Faculty members from chemistry, biology and physics have been collaborating on efforts to reform their lecture and laboratory courses by increasing the use of technology in introductory science curricula, establishing more problem-solving activities in laboratory curricula; increasing the expectation that students will work in teams to learn concepts and solve problems, and providing opportunities for faculty and graduate teaching assistants to learn about teaching and learning and explore different teaching styles. We have also actively participated in the search for funding to construct a new laboratory science building. This facility will enormously enhance our ability to deliver modern technology-rich science curricula.

Science Teacher Preparation. Researchers from across the university have been partnering with regional school districts to improve the preparation of future science teachers completing their degrees at KU and enhance the effectiveness of existing mathematics and science teachers. Projects in these areas are providing science content enhancements to teachers, examining how to teach science more effectively to students with learning disabilities and on improving science education for Native American students in K-12 schools.

Informal Science Education. The Center has partnered with the KU Natural History Museum to provide science activities for middle school students. We plan to use the Museum's internationally known strength in biodiversity research as a vehicle for providing new teaching resources for K-12 classrooms. We are currently developing similar partnerships with other museums and research foundations in the region.

More information about Center activities and programs, including the report of the Chancellors Task Force on science education can be found at the Center website <http://www.kuscied.org>. Additional links to science education research can also be found at Professor Janet Robinson's web site: <http://www.chem.ku.edu/jrobinson/default.asp> or Joe Heppert's web site: <http://www.chem.ku.edu/jheppert/default.asp>.

—Joseph A. Heppert



PROGRAM PROFILES: UNDERGRADUATE AND GRADUATE

One of the many noteworthy attributes of the KU chemistry program is the strength of both our undergraduate and graduate programs. We offer exceptional classroom and research experiences for students of all levels, led by outstanding faculty. We offer our students not only high quality instruction and research opportunities, we also strive to provide guidance for future careers, social interaction with faculty and peers, and financial support which enables our students to focus on their studies and research.

As the department expands and progresses, we feel that it is important to keep our alumni in touch with the primary goals and activities of both the undergraduate and graduate programs.

The undergraduate program, directed by Professor Brian Laird, has two primary missions. One is to help its majors attain a mastery of the discipline in preparation for further study in chemistry or a chemical science, or for immediate employment in chemistry. The other is to provide an opportunity for students majoring in other disciplines to acquire a basic knowledge of the fundamental areas of chemistry.

The program for majors is designed to enable students to develop in-depth understanding of chemical principles; a working knowledge of the properties of chemical substances; a familiarity with the use of the chemical literature; skill in basic laboratory methods, including modern instrumentation; the ability to observe, record, critically interpret, and communicate experimental results; and a facility in analytical and logical problem solving.

The curriculum leading to the Bachelor of Science (B.S.) degree, a rigorous program certified by the American Chemical Society, consists of a full spectrum of chemistry courses as well as supporting courses in mathematics and physics, and is designed to prepare students for a professional career in chemistry. The Bachelor of Arts (B.A.) degree program, with fewer required courses, allows students to obtain a broader knowledge of areas outside of chemistry, or to tailor their chemistry program for specific or unique objectives.

What do our former students think of our undergraduate program? In a recent poll of alumni,

over 90 percent of the 350 survey participants rated the curriculum as being: highly flexible, well conceived, academically and intellectually stimulating, and a provider of an excellent knowledge base. Regarding the chemistry faculty, these students rated their professors as "high quality" and as having a relationship of mutual respect with their students. The KU undergraduate chemistry degree was noted, by these alumni, as having a national reputation and being very effective in helping achieve career goals.

The undergraduate program offers several degree tracks in addition to the B.A. and B.S.: B.S. with environmental chemistry emphasis; B.S. with biological chemistry emphasis; B.A. with environmental chemistry emphasis; B.A. with biological chemistry emphasis; minor in chemistry.

The University of Kansas Chemistry Club for undergraduates serves as the local student chapter of the American Chemical Society. They serve to promote a greater understanding of chemistry, to help the community through tutoring, demonstrations and support, and to help the ACS by encouraging undergraduate research in chemistry, undergraduate attendance of ACS meetings and by helping students learn and enjoy science.

Through the generosity of our alumni and supporters, financial support is available to undergraduates through a variety of scholarships and research funds. Funding is also available to undergraduates who wish to participate in the summer REU program.

The graduate program, under the direction of Professor John Landgrebe, provides excellent opportunities for students who are interested in a career in research, teaching or other chemically related positions. The graduate program offers both the M.S. and Ph.D. degree. The Ph.D. is awarded for mastering a specialty field within the discipline, learning methods of chemical investigation, and completing a substantial piece of original research. The degree is intended to prepare the research specialist. The M.S. degree program, usually completed in two years, omits the intensive course concentration required for the Ph.D. degree and requires a more modest research project and thesis. The M.S. is particularly attractive for students who do not plan a career in basic research, but who want to work in the field of chemistry or a closely related field.

Our course offerings provide the opportunity for an outstanding education. An important aspect of

the program is the special topics courses. One way that students can learn about a research area from a specific faculty member is by joining their research program; a second way is by taking an advanced special topics course given by a faculty member in their research area. By having faculty offer in-depth course opportunities in their area of expertise, students can master the new and exciting areas of chemical research represented in the department.

One of our strengths lies in the breadth of our research program which ranges from bioanalytical, bioinorganic, or bio-organic and biophysical chemistry to synthetic and catalytic inorganic and organic chemistry, to femtosecond laser and theoretical chemistry. We maintain these programs with state-of-the-art instrumentation such as is found in the X-ray Crystallography, Instrumentation Design, Mass Spectrometry and Nuclear Magnetic Resonance Analytical Resource Laboratories.

The department is dedicated to offering financial support to Ph.D. students for a period of up to 5 years, and M.S. students for a period of up to 3 years for completion of their degree requirements. Most students are appointed as GTAs when they first arrive. When they join research groups, the remainder of their program will involve a combination of GTA and GRA appointments, depending on individual research groups and available funds. In addition to GTA and GRA support, several types of fellowships and traineeships are available. Fellowships for summer support are also available.

Both our undergraduate and graduate programs offer opportunities for students to work closely with faculty in their areas of interest in a broad variety of specializations. We continue to develop exciting new courses and areas of study and to offer outstanding financial support to our students at all levels.



REU Program Completes 14th Successful Year

Summer 2001 marked the 14th consecutive season that our department has been a site for the National Science Foundation Research Experiences for Undergraduates (NSF-REU).

The purpose of the REU program is to provide an opportunity for undergraduates to "do science" and so to encourage them into science careers. There are at present over 60 REU sites for chemistry across the nation, along with many in the other sciences, mathematics and engineering.

Fourteen undergraduates from colleges and universities throughout the country spent 10 weeks working on tailor-made research projects under the guidance of KU chemistry faculty in all areas of chemistry. They joined ten of our own undergraduates working on projects ranging from a study of an ion-molecule reaction, to the kinetics of oxygen binding to a metal complex, to combinatorial syntheses, to the development of microchip capillary electrophoresis methods.

This year's program marks the second summer of a three-year grant awarded to PIs Barbara Schowen and Cindy Larive. A total of four three-year grants were previously directed by Marlin Harmony and Barbara Schowen. This continuous record of funding (1988-2002) is rare in the REU program and one of which our department is justifiably proud.



Summer 2001 REU participants.

KU has had an unusually long history with NSF-sponsored undergraduate research programs. In 1956, the NSF asked the administrators of KU's brand new, pioneering, and highly publicized College Honors Program to pilot its Undergraduate Research Participation Program (URP), freshly-conceived as part of the national response to the challenges posed by developments soon to be made evident by Sputnik. It is likely that our Honors Program caught the attention of NSF because of its emphasis on undergraduate research. URP was subsequently announced in 1957 and the first

students participated nationally in 1958. The University of Kansas had URP sites in Chemistry and in many other disciplines throughout the 1960s and 1970s until the program's demise in 1981, due to deep funding cuts to NSF in the early years of the Reagan administration. Dick Middaugh, Kristin Bowman-James and Barbara Schowen ran some of these later URP programs. NSF inaugurated the new but similar REU program in 1987.

From 1956 to the present, it is estimated that no fewer than 500 students participated in these programs in the KU Chemistry Department, about 330 of them directly funded by NSF. Approximately 85% of these participants have gone on to chemistry-based careers, a remarkable record.

The REU program has always been strongly supported by the faculty and the Department as a whole. Without the enthusiastic mentoring of the summer students by the faculty research advisors, the daily help and advice of graduate students and postdocs, and the enormously important assistance of the departmental staff, the program would not have enjoyed the success it has achieved. The presence and enthusiasm of the REU students, as well as that of our own KU undergraduates who join them each summer, has proved energizing to the entire departmental research enterprise. Our graduate students and postdocs benefit by gaining experience in research mentoring, a skill which will be valuable for their own future careers. Much research gets accomplished during the summer, and publications often result. For the period 1987-1999, our record is about 0.5 papers per participant.

Students are welcomed each summer by a large, department-wide picnic at Clinton Lake, hosted by the graduate students and attended by faculty, staff, families, and pets. Volleyball is an important component.

Many of the summer activities for the REU students are designed to increase awareness of the activities and responsibilities of professional chemical scientists. Early sessions on safety and record keeping are followed by later sessions on how to present scientific talks both orally and by poster. Half-way through the summer, student participants present short oral talks describing the purpose of their summer projects, techniques to be employed, and progress to date. During the last week of the program, students present their final results in a formal poster presentation attended by the entire chemical sciences community in Malott,

Haworth, and the West Campus complex. This poster session is held jointly with those of the



Pharmaceutical Chemistry, Medicinal Chemistry, and Molecular Biosciences Departments and consists of some 40-45 posters and an exciting and stimulating end to the summer's activities. A final picnic and socializing provides a fitting conclusion to the Poster Day and the summer's experience.

Each year several former REU students join the Department as graduate students. To date, 28 REU students have entered the program and 14 have received MS or PhD degrees. About five or six others entered related graduate programs in Medicinal or Pharmaceutical Chemistry at KU. Ten former REUs are among our current graduate student body. The REU program has, therefore, shown itself to be an effective way to let prospective students know about our programs and to have a significant effect on the department's research activities. It is certainly a program that we hope to have continue for many years to come.

--Barbara Schowen



CHEMISTRY ALUMNI CREATE FUND TO HONOR RICHARD SCHOWEN

Two chemistry alumni decided to give something back to KU by honoring their mentor, Professor Richard L. Schowen, upon his retirement. Dan Quinn, Ph.D., a professor at the University of Iowa and Richard Gandour, Ph.D., a professor at Virginia Tech, with the assistance of Professor Richard Givens of KU, created the Richard L. Schowen Opportunity Fund to honor Professor Schowen.

The fund has three intended purposes: one, a named lecture, The Richard L. Schowen Lecture in Bioorganic Chemistry, to be held annually or biennially; two, a graduate student fellowship, the Richard L. Schowen Graduate Fellowship, to support a chemistry graduate student; and three, a faculty enhancement fund to assist new faculty members as they begin their careers at the University of Kansas. This award will be designated as the Richard L. Schowen Faculty Enhancement Award.

"The endowment fund honoring Professor Schowen, which his former students initiated last year, has grown so rapidly that it has already surpassed our first two goals. This is a great tribute to Dick and demonstrates the tremendous influence that he has had on his students, friends and colleagues throughout his professional career," says Professor Givens.

Adding to the initial pledges from the fund's initiators, faculty, friends and alumni have given over \$50,000 to the fund to date. The fund has surpassed its second goal -- the Department can now begin to set up the use of the interest from the fund to initiate a new seminar series.

"I have constantly been astonished by the tolerance of students for their teachers and the generosity and kindness of my own former colleagues. This instance is a perfect example. It is not surprising that they harbor good feelings about the Department, which has always been solicitous of all its graduates and affiliates. That my former students and postdocs are willing to be associated with something that bears my name is certainly a source of pride for me - and the fact that I did not destroy their capacity to make a living and thus to donate is a source of relief," says Professor Schowen.



CHEMISTRY ALUMNI ONLINE

Log on for information on alumni events, department updates and to search and share information with former classmates:

<http://alumni.chem.ku.edu>



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 George W. Zuorick, Ph.D.

LOS ALAMOS REVISITED

The high country of northern New Mexico was an inviting change as my wife and I rolled into Los Alamos on March 5th last spring. The blue sky was spotted with the white tufts of scattered clouds reminiscent of a Georgia O'Keefe painting. The climb up the steep embankment of the Los Alamos plateau amidst the early evening reflections of the sunset on the many crevices and highland plateaus surrounding Los Alamos provided a pleasant entrée to our temporary home.



We have arrived!

As we drove by the old guard tower entry to the laboratories, we were reminded of the earlier history of this once secret community that was the home of many laboratory employees where the first nuclear bomb was assembled.

For me, the sabbatical at the Los Alamos National Laboratory (LANL) represented an opportunity to enter into a new area of research in an environment that possessed some of the best-equipped facilities in this country and the opportunity to work with a small group of energetic scientists headed by Bryan Dyer. His field of interest centered on the kinetics and mechanism of protein folding, that is, the formation and disintegration of the three dimensional structure of proteins like hemoglobin. The Dyer group had pioneered the use of step-scan FTIR that can track the events at the nanosecond time scale. The protein-folding problem is one that our research group

at KU may eventually be able to make a contribution to by using one of our nanosecond phototrigger derivatives.

The number of support personnel necessary to conduct research in these new areas had been significantly reduced due to cutbacks in support and the difficulties encountered when LANL redirected a major commitment of its research agenda toward the biological and life sciences. Added complications were caused by the relative recent appointments of a new director and an assistant director for LANL and the disruption and concern surrounding the arrest and detainment of Dr. Wen-ho Li, a long time research scientist at LANL who was accused of spying.

I employed my time learning the new techniques and the background theory in protein dynamics. I was able to explore some of the possible applications of photochemistry for these studies. The initial work went well and we are currently continuing our studies at KU into providing a photochemical method to generate pH changes on a nanosecond or faster time scale as a method for inducing proteins either to fold into their "natural" or active form or, conversely, to unfold to a denatured state. We have also designed, synthesized and tested a phototrigger that can restrict the conformation of an oligopeptide and then, upon irradiation, can release it within 10 ns.

I was able to continue directing the research of my group at KU on a regular, almost daily basis. The on-line library system in combination with Internet connectivity afforded me ready access to information and interaction with colleagues in Europe, Japan, and throughout North America. Through the library access and electronic correspondence, I was able to put together two symposia, one on "Phototriggers and Caged Compounds" that was part of the program for the PacifiChem2000 meeting last December in Honolulu and the Gordon Conference on

Organic Photochemistry in July. In addition, I was able to exchange information, write and edit four major publications with colleagues in Germany, Switzerland, and Minneapolis, at KUMC and in Lawrence and to complete work on two proposals for research support.

After 8 weeks, we began to prepare for our eventual departure from Los Alamos. As the date approached, however, we were party to an unexpected adventure. At nearby Bandolier Park, the forest service had decided to conduct a controlled burn to clean up a part of the surrounding forest that had not experienced a fire in over a century. The burn was started on Thursday, May 4th, and by Friday the winds had created an out of control fire in the park. That seemed of some concern to the park officials and to some in Los Alamos who had remembered an earlier experience in 1996 in which a fire had destroyed a nearby forest. By Sunday evening, the fire had increased significantly in area and intensity. Nevertheless, we drove back through the laboratory premises on our way to our apartment after a day in Santa Fe.

As we entered the apartment, I noted a large stream of smoke pouring over our residence and rushed outside to take the picture below.



By late that evening, the Laboratory was shut down in order to permit emergency vehicles complete and unimpeded access to the laboratory premises.

As we started down the Los Alamos plateau for Santa Fe, the news came over the radio that the fire had jumped the Canyon Road crevices and was now entering North Los Alamos. We immediately returned to our apartment and began throwing the remainder of our household items, including a recently purchased case of vintage "Los Alamos" wine (made by one of Jake Kleinberg's LANL colleagues) into our car. We knew that the fire was approaching our area because cars were tearing by and police loud speakers were instructing everyone to evacuate the town. After a few more loads to the car, we joined the caravan of 19,000 citizens of Los Alamos as we wound our way down the only two passable roads leading out of the town.

Our first destination was White Rock since it was requested by the authorities that we could register our location in the event others wanted to contact us. However, this little suburb of Los Alamos could not handle such a large surge of cars and people, so we continued on to Santa Fe and immediately checked into a motel. From there, we could monitor the progress of the fire as it swept through the north edge of Los Alamos. We soon learned through the local news media that the fire was destroying many homes in Los Alamos and that we could obtain information on which homes were destroyed by logging on to the reports being compiled by the local newspaper. A quick scan through the first reports indicated that 4100 Alabama was among the first buildings destroyed by the fire so any items we had left behind had been lost.



We decided that the sabbatical was over and that 2900 Santa Fe and Lawrence,

KS looked very inviting. By Friday evening, we were back in Lawrence, two days ahead of our originally scheduled return, unscathed but with an appreciation for how fortunate we had been. We had experienced a major disaster to a community that was of interest to others as well. The Lawrence Journal World learned of our experiences through David Topliker, a staff writer for the JW and our neighbor, and the rest is history.

--Richard S. Givens



BUSCH ENDS PRESIDENTIAL SERVICE TO AMERICAN CHEMICAL SOCIETY

I was privileged to enter the American Chemical Society presidential succession in 1999. The succession is a three-year term: President - Elect, President, and Immediate Past President. I am most proud of having brought a responsive and responsible attitude to the ACS presidency.

The ACS has six officers, the three in the presidential succession who are elected by the entire ACS membership, and the Chair of the Board of Directors, the Secretary and Treasurer, elected by the members of the Board. The daily operations of the organization are overseen by a CEO who is a permanent employee. These persons have the responsibility of representing the ACS - the largest and most powerful scientific society in the world - in a number of events, situations

and scenarios.

Each year the ACS holds two national meetings and eight to eleven regional meetings, as well as countless local section meetings. The ACS publishes over 30 journals and magazines and operates an online service. It maintains, through the Chemical Abstracts Service, a database of indexed abstracts covering the entirety of chemical literature, monitoring articles in about 8000 sources. The ACS employs 1800 people, the majority of those in Columbus, Ohio, where Chemical Abstracts and publications are concentrated. The Society is big business with an annual revenue stream of \$350,000,000. The total dollar value of the ACS, including CAS and Journals, is near \$2 billion.

The presidential succession serves the organization in a variety of capacities. Among other many and varied duties, I worked at the national level by serving as Chair of the ACS Board Committee on Public Affairs and Public Relations, as Chair of the Society Committee on Education, on two National Academy of Science committees, and by writing editorials for Chemical and Engineering News.

At the international level, I served as the ACS representative on the US National Committee on International Union of Pure and Applied Chemistry.

I have served on a variety of task forces including serving as Chair of the Institute Study Group Task Force which brought the Green Chemistry Institute into the ACS. I served on the Blue Ribbon Advisory Group, launched the Task Force for the Advancement of Women in the Chemical professions, participated in the Strategic Planning Task Force, and spoke at the launching of a Task Force on ACS Leadership Needs.

In addition to these many other duties, I participated in the presentation of multiple awards and commendations as well as presided over countless meetings.

It was truly a privilege to serve in the ACS Presidential Succession and to serve the most powerful scientific society in the world. I appreciated the support of my colleagues, the university and my professional friends and acquaintances as I served in this very exciting succession.

--Daryle H. Busch

**45TH CHEMISTRY HONORS RECEPTION
1999-2000**

**Undergraduate Student Awards
The Proctor and Gamble Book Awards**

General Chemistry
students with outstanding records

David M. Ferrano Edward S. Paxton
Kristi L. Liu Chris D. Ploetz
Brett D. Olson

Organic Chemistry
for excellence in the one-semester and two-semester courses

One-Semester Course	Two-Semester Course
Galen S. Loving Katherine S. Pacey Colin A. Ruff Michael J. Zane	Ashley N. Albright

Analytical Chemistry
for superior achievement

Sarah J. Pyszczynski

Physical Chemistry
for superior achievement

One-Semester Course	Two-Semester Course
Lee R. Schnee	Tiffany N. Addington

The Owen W. Maloney Scholarship
student(s) with the best record in general chemistry

Ian T. Tice

The Fassnacht Scholarship
advanced student planning a career in chemistry

Michael L. Lewis Katie R. Mitchell
Olga Kuchment

The Leonard V. Sorg Scholarship
student(s) planning a career in chemistry

Jeanine R. Steffy

The Clark E. Bricker Scholarship
second-year student(s) intending to major in chemistry

Brittany L. Lee Christina Warinner

The Jacob Kleinberg Award
third-year major who has made outstanding progress in research

Katie R. Mitchell Olga Kuchment

**Special Award for Outstanding Achievement in Chemistry to
Graduating Senior(s) Pursuing a Career in Medicine**

Justin Hauxwell Lee R. Schnee
Lesley L. Liu Jeffery A. Woo

American Institute of Chemists Award
a national award

Lesley L. Liu

Alpha Chi Sigma Awards
outstanding graduating seniors in chemistry and chemical engineering

Chemistry	Chemical Engineering
Tiffany N. Addington Erin H. Hummert	Mark A. Rice

GRADUATE STUDENT AWARDS

The H. P. Cady Award
excellent performance by first-year graduate student(s)

Andrew M. Harned Laura H. Lucas

The Frank B. Dains Award
outstanding first-year teaching assistant

Christopher E. Katz Leilani L. Welbes

The Ray Q. Brewster Award
advanced graduate teaching award

Troy G. Bothwell William H. Otto

The Paul and Helen Gilles Award in Physical Chemistry
superior academic performance and research accomplishments by a doctoral student

Jess B. Sturgeon

The Ernest and Marvel Griswold Award in Inorganic Chemistry
outstanding advanced graduate student(s) in inorganic chemistry

Cora E. MacBeth

The Higuchi Doctoral Progress Award
superior post-comprehensive student(s) in his or her final year

Peter G. Conrad, II Chad E. Talley

The Reynold T. Iwamoto Award
award based on academic performance

Xi Chu

The Snyder Award
graduate student of considerable promise

Michelle L. Kennedy Jennifer L. Razak

The J. K. Lee Award
advanced graduate student award based on academic record and research ability

Benjamin J. Cutak Janaki Mahadevan

Cornelius Armstrong and Martha Kidwell McCollum Summer Research Fellowship

Rachel S. Aga Kevin T. Sprott

**46TH CHEMISTRY HONORS RECEPTION
2000-2001**

**Undergraduate Student Awards
The Max W. Barlow Book Awards**

General Chemistry
students with outstanding records

Kristin M. Dehaven Anna Ho
Kelly N. Flentie Charles J. Srstka
 Baiju Gandhi

Organic Chemistry
for excellence in the one-semester and two-semester courses

One-Semester Course	Two-Semester Course
Trina Doubrava	Galen S. Loving E. Scott Paxton Jana K. Zaudke

Analytical Chemistry
for superior achievement

Brittany L. Lee Trung Nguyen

Physical Chemistry
for superior achievement

One-Semester Course	Two-Semester Course
Eric T. Rush	Katie R. Mitchell

The Snyder Award
undergraduate student of considerable promise

Huey Lih Lee

The Owen W. Maloney Scholarship
student(s) with the best record in general chemistry

John Cathcart-Rake Christina A. Ogle

The Fassnacht Scholarship
advanced student planning a career in chemistry

Brittany L. Lee Galen S. Loving
Keely E. Olmsted Christina L. Vizcarra

The Leonard V. Sorg Scholarship
student(s) planning a career in chemistry

Tatsuo Kasuya Emily C. Welch

The Clark E. Bricker Scholarship
second-year student(s) intending to major in chemistry

Mandy D. Petz Bonnie A. Sheriff

The Jacob Kleinberg Award
third-year major who has made outstanding progress in research

Brittany L. Lee

**Special Award for Outstanding Achievement in Chemistry
to Graduating Senior(s) Pursuing a Career in Medicine**

S. Kyle Zimmerman

American Institute of Chemists Award
a national award

Sarah J. Pyszczyński

Alpha Chi Sigma Awards
outstanding graduating seniors in chemistry and chemical engineering

Chemistry	Chemical Engineering
Trung Nguyen	Chad A. Gustin

GRADUATE STUDENT AWARDS

The H. P. Cady Award
excellent performance by first-year graduate student(s)

Brian D. Slaughter

The Frank B. Dains Award
outstanding first-year teaching assistant

Janelle L. Portscheller

The Ray Q. Brewster Award
advanced graduate teaching award

Laura H. Lucas

The Paul and Helen Gilles Award in Physical Chemistry
superior academic performance and research accomplishments by a doctoral student

Rachel S. Aga Janaki Mahadevan

The Higuchi Doctoral Progress Award
superior post-comprehensive student(s) in his or her final year

William H. Otto

The Reynold T. Iwamoto Award
award based on academic performance

Laurie A. Cardoza

The Snyder Award
graduate student of considerable promise

Stacy D. Arnett

The J. K. Lee Award
advanced graduate student award based on academic record and research ability

Karen M. Padden

Cornelius Armstrong and Martha Kidwell McCollum Summer Research Fellowship

Yao Houndonoughbo Cora E. MacBeth
Joel D. Moore

The Marnie and Bill Argersinger Award
Graduate School Award for Outstanding Doctoral Dissertation

Kevin T. Sprott

KU RANKS #2 IN THE PROMOTION OF WOMEN SCIENTISTS

Earlier this year I was asked to write an article about women in chemistry for the Korean Chemical Society equivalent of *Chemical & Engineering News*. I would like to share with you, our alums and friends, excerpts from my article.

Statistics clearly show a lack of women at higher levels of the academic and industrial workforces. Women are in the minority in the field of chemistry. We work daily with our colleagues, who are mostly men. We have become so accustomed to our environment, that we rarely give the gender ratio a second thought.

At the Korea-U.S. Inorganic Chemistry Conference held in Seoul in 1993, I was hoping to meet a Korean chemist, Professor Myung Paik Suh, whose work I had been following. I asked the organizers if Professor Suh would be attending noting that I wanted to meet "him." They replied that Professor Suh was indeed a participant, but that the professor was a woman. (If a similar situation would arise in my own culture, i.e., attempting to identify a chemist whose name was gender-ambiguous, I would also most probably ask about "him.") Professor Suh and I were the only women in attendance at this conference. Professor Suh has succeeded in pursuing a highly successful, internationally recognized career.

As a woman administrator, I have followed the progress of women minorities in the sciences. Last September *Chemical & Engineering News* published a survey of the gender distribution in the top fifty chemistry departments in research as identified by the National Science Foundation. Amazingly, for only two universities was the percentage of women faculty greater than 20%. Those two are Rutgers with 10 (26%) and the University of Kansas with 6 (25%) women faculty. The norm for the top fifty was 10%. So how did my own university get to be number two with respect to percentage of women in chemistry?

I discovered that our chemistry department had women on its faculty in the early to mid-1900s, an unusual phenomenon at that time. Two women faculty were hired in the 1920s as Assistant Professors and a third in 1930. Only one, Mary Elvira Weeks, was promoted beyond the Assistant Professor level to Associate Professor in 1934. She is most noted for her several editions of the book "The Discovery of the Elements." After 1944, the department remained devoid of women faculty members until 1975 when I was hired.

In 1985, we hired another woman, K.

Barbara Schowen. She had taught on the faculty for a number of years at nearby Baker University, and was destined to be a key player in the department because of her intense interest in students and our education mission. She now heads the university's Honors Program, and is a valued member of our department.

The 1970s and 1980s were years where there were very few searches for new faculty. In 1992 Cynthia Larive, an analytical chemist, joined our faculty. She is currently an Associate Professor, and has succeeded in establishing a rather unique research program at the environmental/analytical interface. As of 1995, there were three women on our faculty (about 12%).

In 1999 Janet Robinson was already at KU as a postdoc. She became the fourth woman to join our department over a 25 year span.

In the last two years, three more talented women have joined us. Two, a synthetic organic and an experimental physical chemist arrived last year. The third, an analytical chemist, will arrive in August 2002. These are women with the expectation of initiating internationally recognized programs of research. In the fall of 2001, our department will have seven women on the chemistry faculty.

The University of Kansas continues as one of the leading universities in the nation in recruiting and retaining women faculty members, as it has for over a century. As more women choose careers in the sciences, I believe those numbers will increase over time. We can help to accomplish this by continuing to provide role models to women who wish to excel in the sciences.

—Kristin Bowman-James

* * * * *

TRANSITIONS

NEW CHEMISTRY FACULTY PROFILES

Three new professors were hired in 2001 as part of the Department's ongoing effort to recruit talented chemistry faculty.

Assistant Professor Cindy Berrie earned BS degrees in chemistry and mathematics from the University of Nebraska at Lincoln in 1992 and took her Ph.D. at the University of California at Berkeley in 1997. Following postdoctoral work at JILA, the University of Colorado, she joined the KU chemistry department in January 2001.

Professor Berrie's research focuses on the

area of surface and interface chemistry. Her primary focus is on the understanding of biomolecule-surface interactions, which are important in the development of biosensors, the compatibility of biomedical implants, and drug delivery. Another area of interest is the study of the growth of nanometer-sized semiconductor materials, important for improving electronic devices such as computers and also in the creation of devices with properties unique to this size regime. Both areas of research take advantage of new techniques for making nanometer-sized patterns on surfaces. In this way, the surface chemistry can be controlled and modified at will.

The main experimental tools in Professor Berrie's group are atomic force microscopy and scanning tunneling microscopy. These techniques allow very detailed measurements to be made on even a single molecule adsorbed to a surface.

Assistant Professor Helena C. Malinakova earned her BA/MS at the Institute of Chemical Technology, Prague, in 1989 and her Ph.D. from the Illinois Institute of Technology in 1998. She served as a postdoctoral research assistant at Emory University from 1999-2000 and joined the KU faculty in 2000.

Professor Malinakova's areas of research interest in synthetic organic chemistry include: development of methodology for total synthesis of natural products, transition metal mediated C-C bond formation, asymmetric synthesis, cascade reactions and metal-induced C-H bond activation. In recent years, transition metal complexes have become recognized as powerful synthetic tools capable of creating new carbon-carbon bonds under impressively mild conditions and in a highly selective manner.

Malinakova's research group aims to develop new synthetic methods using transition metal-based reagents such as organopalladium complexes. To accomplish this goal, they shall investigate the chemistry of compounds with a chiral carbon directly attached to a transition metal. They will explore the preparation of such reagents and intermediates in an enantiomerically pure form and then use these to construct complex organic molecules with significant biological activities.

Assistant Professor Ward H. Thompson earned a B.S. in physics at Oklahoma State University in 1991 and his Ph.D. in chemistry at the University of California at Berkeley in 1996. He worked as a postdoc in the Department of Chemistry and Biochemistry at the University of Colorado from 1997-2000. He joined the KU

chemistry faculty in January 2001.

Professor Thompson's research is focused on trying to understand, at a molecular level, how chemical reactions occur in liquids. This work involves developing and applying new theoretical techniques for accurately describing reaction dynamics, particularly for reactions where quantum mechanical effects such as tunneling play an important role. Thanks to the recent dramatic advances in computer speed it is now possible to realistically simulate very complex chemical systems. Some of the problems being addressed by Professor Thompson's group include: double proton transfer reactions in solution that may be important in enzymatic catalysis and DNA mutations; reactions occurring in solvents confined within nanometer-sized cavities like reverse micelles or sol-gels; Friedel-Crafts reactions and reactions in superacid media; and vibrational relaxation of molecules dissolved in liquids or small clusters. The goal is a better understanding of reactivity that may aid in controlling chemistry in complicated systems like these.

GEORGE E. WALRAFEN RETURNS TO KU

George E. Walrafen, Professor Emeritus of Physical Chemistry at Howard University, is returning to KU. Walrafen is a Kansas native and a graduate of the KU chemistry department, where he earned his B.S. in 1951.

He continued his chemistry studies earning an M.S. degree in 1957 and his Ph.D. in 1959, both at the University of Chicago. Professor Walrafen's first position following graduation was as a member of Technical Staff, Chemical Physics Research Department in the Bell Telephone Laboratories. He accepted his first academic position as Professor of Physical Chemistry at the University of Marburg, Germany, from 1972-1973. From there he joined the faculty at Howard University in 1975, retiring in 1997, with a total of 128 publications.

His research areas include Raman Spectroscopy, liquid water structure and thermodynamics.

Walrafen is bringing to KU some of his state-of-the-art Raman Spectroscopy equipment. He is providing this equipment for use in the physical chemistry laboratories for use in teaching both undergraduate and graduate students. He has volunteered to write experiments for the undergraduate physical chemistry Raman Spectroscopy lab. The Department is excited to have George join us and greatly appreciate the contributions he has and will make to the

Department.

In addition to a busy and productive life as a chemistry professor, Walrafen enjoys a few hobbies: classical music, woodworking and antique cars.



PROFESSOR RICHARD SCHOWEN RETIRES FROM KU CHEMISTRY

After 37 years of teaching chemistry at the University of Kansas, Prof. Richard Schowen announced his retirement in July 2000.

Schowen graduated from the University of California – Berkeley in 1958, taking a B.S. with honors in basic chemistry and physics. He then studied organic chemistry at the Massachusetts Institute of Technology (and served as an NIH Fellow from 1960-1962) and earned his Ph.D. in 1962. He joined the KU faculty in 1963 as an assistant professor and retires as the Summerfield Distinguished Professor of Chemistry, and professor of both biochemistry and pharmaceutical chemistry.

Schowen has earned a great number of fellowships, honors and awards. After receiving his NIH Fellowship at MIT, Schowen went on to be named an Elizabeth Watkins Scholar at KU, to earn the NIH Research Career Development Award, and to serve in three named professorships during his tenure at KU. Schowen received an honorary doctorate from the Martin Luther University, Halle, Germany, and the Midwest Award of the American Chemical Society. Numerous distinguished lecturer invitations, honors, and awards round out his phenomenal chemistry career.

To honor Professor Schowen's commitment

to both the study and the teaching of chemistry, an endowment fund was established, in his name, by his students, colleagues and friends. The Richard L. Schowen Opportunity Fund was established upon his retirement to support research and provides for programs in the Department of Chemistry.

✦ ✦ ✦ ✦ ✦ ✦ ✦ ✦ ✦ ✦

HENRY BROWN, A CHEMIST WHO MADE THE METAL SHINE, DIES AT 93

April 4, 2001

Henry Brown, a chemist who helped make the American Dream a gleaming reality by finding new ways of keeping chromium plate bright and shiny, died on March 15 at his home in Palo Alto, California. He was 93.

In the years just after World War II, Mr. Brown's discoveries made bathroom fixtures and kitchen utensils silvery and put the gloss on the bumpers of the finny automotive monsters Detroit turned out in the 1950's and early 60's. But there had been other earlier and less obvious beneficiaries of his skill at making dull metals shiny. In the austere war years, he showed the United States Treasury how to make steel pennies gleam and invented a high-speed process for brass-plating shell cases, so they did not stick in artillery guns.

Even the atomic bombs that were exploded over Hiroshima and Nagasaki owed something to him, for in 1943 he joined the Manhattan Project as a research chemist, developing porous nickel screens for separating atomic particles.

To prevent chromium plate from losing its shine, said Edwin Hoover, a metallurgist who worked with him, Dr. Brown used sulfur-bearing organic compounds, like saccharine, to brighten the underlying layer of nickel plate placed on the metal before a thin covering of chrome was added.

Dr. Brown studied these possible brightening agents, and then discovered that the outer chrome coating became more resistant to corrosion if it was made highly porous. He developed a technique using fine powders to increase the metal's porosity.

He also invented a method of suppressing the toxic fumes given off by the process of nickel plating.

Dr. Brown received 92 United States patents and 250 foreign ones and received recognition for his work, including the American Electroplating Society's Scientific Achievement Award in 1967.

Born in Jersey City on April 5, 1907, Dr. Brown received his bachelor's degree in chemistry from the University of Kansas in 1928. He went to

the University of Michigan on a Rockefeller Teaching Fellowship, receiving his Ph.D. there in 1933 while working as an assistant professor.

The next year he joined the Udylyte Corporation of Detroit, a company specializing in cadmium plating that wanted to diversify. Except for wartime duties, the rest of his working life was spent at the company, where he was research director from 1950 until he retired in 1972.

He was one of the authors of "Modern Electroplating" (Wiley-Interscience, 1974), a standard work on the subject.

He is survived by his wife, the former Harriet Stone; his daughter, Paula Sorrell Brown of New York City; Dennis Mayer Brown of Palo Alto; and two grandchildren.

--by Paul Lewis, as published in the New York Times

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KU OPEN HOUSE

Join the Chemistry Department in celebrating the campus-wide KU Open House on October 6, 2001, 10 AM to 3PM

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FACULTY NEWS

Professor Robert Carlson was honored for the second time by the KU chapter of Mortar Board, a national senior honor society. Carlson was named one of five Outstanding Educators for 1999. Recipients are nominated for their devotion to academia, teaching style, accessibility, knowledge of their subject and other special qualities identified by the Mortar Board.

Professor Richard Givens was honored by his alma mater, Marietta College, with an Honorary Doctor of Science degree conferred during the school's 165th convocation celebration.

Chancellor Hemenway appointed 16 KU faculty members to serve on a science education special task force. Those members include **Professor Richard Givens** and **Professor Joseph Heppert**.

Associate Professor Paul Hanson's work with ring-closing metathesis (RCM) was profiled in the September 13, 1999 issue of Chemical and Engineering News.

Professor Joseph Heppert worked with faculty in chemical engineering to develop and

evaluate formulas for soybean oil-based cetane improvers. This new type of fuel additive could help reduce energy costs and American dependence on imported crude oil.

Professor Jack Landgrebe was one of two KU faculty honored by the Chancellors Club (KU's major donor organization) in the fall of 1999. Landgrebe received the Chancellors Club Career Teaching Award, honoring senior faculty members who demonstrate commitment to outstanding teaching. The award includes a \$5000 prize.

Professor and Chair Craig Lunte was chosen by the Self Graduate Fellowship Committee as one of six honored to receive the 2001 Self Graduate Fellowship Mentor Achievement Awards. Lunte's Self Fellow is Allyson Charbonnet.

Assistant Professor Janet Robinson was profiled in the University Daily Kansan for her dynamic teaching methods and use of nontraditional style teaching aids.

Professor Barbara Schowen continues to direct the KU Honors Program. Each spring, outstanding undergraduates participate in the Program's Undergraduate Research Symposium where they offer presentations, programs and posters detailing their research.

Professor Barbara Schowen and **Professor Emeritus Richard Schowen** were featured in a 1999 Lawrence Journal-World article. The article highlighted the many exceptional individual academic achievements of the respective Schowens and their equally successful 38 year marriage.

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CHEMISTRY STAFF EARN "EMPLOYEE OF THE MONTH" HONORS

Several years ago the University implemented the Employee of the Month Award, a program recognizing the efforts of classified and unclassified employees. Nominations are received for faculty, other unclassified and classified employees. After a twelve month period those individuals vie for Employee of the Year. It is a great program to recognize the achievements of some very deserving individuals. Since the implementation of this program the Chemistry Department has earned three awards.

In November 1999, Larry Miller was the first Chemistry Classified Employee of the Month recipient. Larry worked as a Laboratory Educational Technologist in the Analytical Stockroom where he assembled all the items needed

ALUMNI NEWS

for each lab. In addition to these duties he assisted in the large lecture classes outside of Malott. When Hoch burned he often found himself assisting in classes that started at the same time in Murphy Hall and the Union. Larry also worked in the maintenance shop where he fabricated items to be used in teaching and research labs. He always had a smile and was willing to help anyone who was lost in the building. Larry retired in April 2001 and the entire department misses him.

Terrie Saunders received the Classified Employee of the Month award in April of 2000. She has worked in the Chemistry Department for eight years as a Keyboard Operator III. When she first began working in the front office her duties included typing exams and manuscripts and maintaining class grades for the Physical Chemistry Division. As the front office staff has decreased over the past years Terrie has taken on additional responsibilities. She now types exams and copies exams for courses that have 500 to 1000 students, and maintains grades for general, organic and physical Chemistry courses.

In October 1999, one of the two secretaries resigned, leaving Terrie as the only secretary in the main office. Because of a hiring freeze, the position was not filled until mid-March. Two other staff members helped Terrie out, but she bore the brunt of the load for the department.

Mike Gusick, a systems specialist, who works in the Instrumentation Design Lab, was the Unclassified Employee of the Month for November 2000. He designs and builds special-purpose instrumentation and participates in the other lab tasks, providing support for networking and investigating new technologies. Ken Ratzlaff said that his work includes fascinating intellectual and technical challenges and tedious assembly work. "Often we have ended the day discussing how to solve a seemingly intractable problem, and the next morning he comes in having studied a new area of electronics that yielded a solution," Ratzlaff said. Mike had taken over a telemetry project that had failed in the hands of other engineers and solved the problem through study and persistence. His successes result from his experience, tenacity and ability to work collaboratively as part of a design team.

These are just a few of the many talented people who make the Chemistry Department run smoothly and we want to congratulate them on their efforts.

--Susan McAfee



Dieter Bergner and his wife Helga visited their daughter's family near Chicago. Bergner has retired but keeps in touch with chemistry through the DECHEMA in Frankfurt. They hope to visit in Lawrence this year

K. Douglas Carlson, having retired from Argonne National Laboratory and moved to Wooster, Ohio is working on his new house. He recently attended his 50th high school reunion in Redlands, CA.

David Cater, Ph.D., having retired from University of Iowa, remains active in chemistry by evaluating standard examinations in scientific areas. He and his wife Jean share their time between Iowa City and Lake Ada, Minnesota.

Hong-yih Chen is retired from DuPont. He, Lititia, and their two children plan a trip to Spain this year.

As Vice President of International Nickel, **Bruce R. Conard** continues his extensive travel. His work relates top environmental issues and has most recently led to a visit in London. Conard occasionally presents lectures at universities. Audrey continues her half-time ministry.

Kent W. Cox (Ph.D.'70, MD '75) has retired from his head and neck surgical practice in Seattle, WA. He now practices part-time in Payson, AZ. Kent and Adrienne stay active hiking, working on the ranch, and raising herding dogs.

J. G. Edwards has retired from the University of Toledo and has recently had a paper accepted by JPC. Edwards and Paul Nordine visited William Mertin while they were in Germany for the IUPAC International Symposium on High Temperature Materials. He also presented a poster at the GRC.

H. F. (Fritz) Franzen is retired from Iowa State and Ames Lab. Franzen has been lecturing in Europe and California. He and Susan recently visited Lawrence.

Gary D. Holmes retired in May 2001 from teaching at Butler County Community College. He planned to be moved into his new farmhouse in July 2001.

Henry F. Holtzclaw, Jr., died on May 24, 2001. Holtzclaw earned his B.A. in chemistry and economics at KU, and an M.S. and Ph.D. in chemistry at the University of Illinois. He taught at the University of Nebraska - Lincoln for 41 years, retiring from UNL in 1988. In addition to authoring three freshman-level textbooks, Holtzclaw served as editor-in-chief for volume eight of the reference series "Inorganic Syntheses." He was councilor for the ACS Nebraska section from 1987 to 1992.

Frederick H. Horne (Ph.D. 62) is retired as the dean of the college of science at Oregon State University. He retired from the active faculty in January 1, 2001, after teaching a graduate/senior course in chemical thermodynamics and the third term of physical chemistry in 2000-2001.

John Y-K. Huang and his wife Sue recently visited Lawrence and were of great help to Paul Gilles in cleaning out his office. Their son Henry is a student at Harvard. He, Robert Sheldon and Gary Rinehart work in closely related activities at Los Alamos.

Jay Janzen, Ph.D., joined the department of chemical engineering and petroleum refining at the Colorado School of Mines as a research professor in early 2001. Janzen's new appointment succeeds his 32 year career as a material scientist at Phillips Petroleum Co. In his most recent position at Phillips Petroleum, Janzen served as senior research associate and polymer plastics group leader at the Phillips Research Center in Bartlesville, OK.

Glen F. Kessinger is at Idaho National Laboratory and has traveled frequently to other DOE sites. He hopes to inaugurate mass spectrometric vaporization studies soon. Kessinger and Harry Robson have communicated recently on zeolite issues.

Bill Kueper (Ph.D. 94) was appointed in late 1999 to the position of research specialist in the Adhesive Technologies Center at 3M. His doctoral work was in physical organic chemistry and organic photochemistry. Kueper joined the ATC in 1996 after completing his postdoctoral appointment at the University of Illinois and the Georgia Institute of Technology. Bill has 3 ROIs, one being treated as an important trade secret for 3M.

Don Leedy. Strangely enough, Don Leedy's association with the University of Kansas began two years before he ever set foot in the state of Kansas. Don began his research career working in the

laboratory of Professor Ted Kuwana at the University of California, Riverside in 1962. Ted was Ralph Adams' first Ph.D. student and provided the most important influence leading to Don entering graduate school at KU, also to study in the laboratory of Ralph Adams. Upon receiving his Ph.D. in 1968, Don began a long research career with the Procter & Gamble Company in Cincinnati, Ohio. Don's 33 year career with P&G included research in analytical chemistry, and leading research groups studying complex flavor analyses, drug analysis, drug formulation development, including transdermal delivery, and upper respiratory research involving colds infection and allergy. Don retired this year from P&G after a three year stint leading the Professional Relations program for the launch of P&G's new osteoporosis drug Actonel. Don is excited to continue his long association with the KU Department of Chemistry (over 39 years) by working with other KU graduates in the Department's fund-raising and strategic planning effort. Don serves as co-chair of the Chemistry Alumni Development Committee.

James M. Leitnaker finds retirement from Oak Ridge National Laboratory leads only to more activities. He teaches Sunday school, gardens, and attends Rotary. He and Jean have recently visited Cancun and Paris.

Howard W. Lincoln noted that the last issue of Jayhawk Chemist was of particular interest to him, especially the photo of the 1944 staff. Lincoln had classes from five of the faculty featured in the front row of the photo. Lincoln was saddened to learn of Bob Slocombes death - the two were fraternity roommates for two years. Lincoln worked for 36 years in research and development at Pillsbury and is now in his 26th year of his second career - retirement.

Michael Malis (BA 95, MD 99) completed his preliminary year of internal medicine at the Indiana University School of Medicine, where he began residency in radiology in July, 2000.

Stanley E. Manahan, professor of chemistry at the University of Missouri - Columbia, was the Year 2000 recipient of the Environmental Chemistry Division Award of the Italian Chemical Society. The award was presented to Manahan at the society's June 4, 2000 meeting in Rimini. Manahan earned his Ph.D. in analytical chemistry in 1965 under the direction of Professor Reynold Iwamoto.

CR (Gus) Manning entered the KU chemistry graduate program in 1965 with a BA in chemistry from the College of Wooster. Manning received his Ph.D. in 1969 with the Ralph Adams research group. In 1978, Manning left ALZA to found an independent consulting business which, in 1981, evolved into Assay Technology with a mission to develop user-friendly products which make analytical chemistry technology accessible to the non-expert user. Since 1985, Assay Technology has focused on design and manufacture of personal air samplers which measure chemical concentrations in workers' breathing zones. Manning continues to operate the Company as it completes its 20th year. He serves as co-chair of CADCom, the Chemistry Alumni Development Committee.

John L. Margrave continues to teach at Rice University. He teaches a class a semester, edits a journal, maintains three students and two post-docs in active research in fluorine and in nanotechnology. He and Mary Lou celebrated their 50th wedding anniversary in 2000 and planned to visit KU and Lawrence in the spring of 2001.

William Mertin has retired from the Institute of Inorganic Chemistry in Linden, Germany. He and his wife Marie-Louise were visited by Paul Nordine and Jim Edwards earlier.

Tom Milne (BA 50, Ph.D. 55) retired from the National Renewable Energy Laboratory in 1996. He still has an office at the laboratory, where he keeps abreast of advances in biomass thermochemistry.

Luis A. Morales published the results of a four-year study on the existence of a crystalline compound of plutonium and oxygen, richer in oxygen than the dioxide, in the 14 January 2000 issue of Science. Such existence has long been a controversy.

The front cover of the 11 February 2000 issue of Science showed the glowing light from a sample of liquid aluminum oxide at 2700 K, levitated by a gas jet and heated by a carbon dioxide laser beam in the laboratory of **Paul C. Nordine's** company, Containerless Research. Nordine presented a paper at the GRC and he and Jim Edwards visited William Mertin while they were in Germany for the IUPAC International Symposium on High Temperature Materials.

Dean E. Peterson, Ph.D. and his wife Suzanne escaped the Los Alamos fire. Peterson

leads the endeavor at Los Alamos on thin film superconductors.

Dan Quinn (Ph.D. 78) began serving as chair of the department of chemistry of the University of Iowa in August 1999. His wife, Andrea, is co-owner and controller of HiRail, Inc., a Lisbon, Iowa company which produces rubber crossing materials, made from recycled tires, for highway/railroad intersections. Otherwise, their lives are placid in the hour or so of down time they share each week.

Robert Regier (MA '41) notes that he was a KU chemistry graduate student from 1938-1941 and that the 1944 photo of the chemistry staff (Jayhawk Chemist, 1999) was exactly as he remembers them. Regier was in some of Prof. Cady's classes and enjoyed attending Cady's freshman general chemistry lectures. Two of Regier's children graduated from KU and his family feels great affection for KU.

Gary H. Rinehart received recognition and the Mishima Award from the American Nuclear Society for his Los Alamos work on providing the plutonium power source aboard the Mars Rover vehicle. He, John Y-K. Huang and Robert I. Sheldon work at Los Alamos in closely related activities.

Harry E. Robson has retired from LSU, works on the revision of his book, and has communicated with Glen Kessinger on some zeolite issues.

Mark H. Schoenfish (BA '92) went to graduate school at the University of Arizona and worked with Prof. Jeanne E. Pemberton, graduating in 1997. From 1997-1999, Schoenfish was an NIH postdoctoral fellow at the University of Michigan where he worked with Prof. Mark E. Meyerhoff. Schoenfish comments that he owes his passion for chemistry to Prof. George S. Wilson who, as Schoenfish's undergraduate advisor, first introduced him to research. Schoenfish is currently an assistant professor of chemistry at the University of North Carolina, Chapel Hill.

Robert Sheldon and his wife Pat attended the GRC and have started making retirement plans by purchasing a 22' travel trailer. Bob, Gary Rinehart and John Y-K. Huang work in closely related activities at Los Alamos.

Karl E. Spear and Nancy recently visited Kansas: Karl to be initiated into Baker University Athletic Hall of Fame, and Nancy to attend a high school reunion. Spear is still active in research at Penn State. He serves as Vice President of the Electrochemical Society he will soon become President. During his sabbatical he plans to finish his book. Nancy is scheduled to have a one-person art show at Penn State's main galleries in a couple of years.

Erich Steinle completed his doctorate in chemistry at the University of Michigan in 1999, after which he took a postdoctoral position at the University of Florida.

Albert E. Taylor (BA '30, MA '34) is professor emeritus of chemistry and dean emeritus of the graduate school at Idaho State University. Taylor's graduate work was supervised by Prof. Cady and he took Prof. Mary Elvira Weeks' course in analytical chemistry. He also took courses from Prof. Taft and had a copy of the first edition of Prof. Weeks' book, "Discovery of the Elements." Taylor notes that "It was 70 years ago that I first arrived on the Campus of the Jayhawks."

Victor E. Viola presented the Tracy M. Sonneborn lecture at Indiana University, where he is a professor of chemistry.

Phillip G. Wahlbeck has retired from Wichita State, continues to go to the university a couple of hours a day, and has a paper scheduled for publication. He and his wife Donna enjoyed a cruise to Alaska and have visited their children and grandchildren. He presented a poster at the Gordon Research Conference on High Temperature Materials and Processes.

George E. Walrafen visited KU to present a department seminar on his Raman work on sulfuric acid solutions. He has retired from Howard University after some twenty years and maintains an active research program. He recently returned to KU where he is taking an active role in the chemistry department.

Frank H. Welch (BA 40, MA 48), is retired and enjoys traveling. He planned to visit Europe, Hawaii, and Great Britain in 2000. Welch notes that he misses seeing the name of his "favorite of all professors" and former advisor, Professor Taft, in the chemistry newsletter.

Quinten D. Wheatly and Audrey recently visited Lawrence and relatives in central Kansas. They have retired and live near Buffalo, NY.

Mark A. Williamson, Ph.D., has moved from Los Alamos to Argonne. His work focuses on the development of nuclear fuels processing technologies.

Jason B. Wittmer (BA '93, MD '97) completed his residency at the KU Medical Center in June 2000. He is now taking a three year fellowship in pulmonary and critical care medicine, also at KUMC. Wittmer was married in late 1999.

Richard L. C. Wu and Spring own K-Systems. They have traveled to San Diego and Boston for ACS meetings and to Russia, Norway, Sweden, Denmark for pleasure. Spring manages their company and Richard works in research developing diamond-like carbon capacitors using his patented process. He is active with presenting papers, writing papers, and receiving his third patent. He received a research award from the Air Force Research Laboratory Commander.

Paulos G. Yohannes was recently promoted to full professor at Georgia Premier College in the Atlanta area. In spring 2000, Yohannes was awarded, for the second time, the President's Distinguished Faculty Achievement Award.

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KU CHEMISTRY ALUMNI ONLINE

Visit our new alumni website for alumni event information and department news.

Search for former classmates and enter your own information – all online!

<http://www.alumni.chem.ku.edu>

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ALUMNI INFORMATION UPDATE FORM

We'd like to know where life has taken you since you left Old KU. Please complete the following form and return to:

Chemistry Alumni
Department of Chemistry
2010 Malott Hall
University of Kansas
Lawrence KS 66045
chemalumni@ku.edu

Or submit your response on the alumni website: <http://alumni.chem.ku.edu>

We look forward to hearing from you!

Name: _____

Degree & date: _____

Address: _____

Employment information: _____

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News, updates, comments or suggestions (feel free to enclose photos, news clippings, etc.):

May we include this information on the alumni website? Yes _____ No _____

Yes, but please omit the following information: _____

The chemistry department deeply appreciates the generous financial support of our friends and alumni. Every gift will be used in its entirety, as designated by the donor, to benefit the Department of Chemistry. Gifts are tax-deductible to the extent allowed by law. The KU Endowment Association maintains the following funds, fellowships and scholarships on behalf of Chemistry:

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The Chemistry Department wishes to thank the KU Alumni Association and the KU Endowment Association for their many efforts on behalf of KU Chemistry and the university.

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