

# School of Chemical Sciences

# ALUMNI NEWS

University Of Illinois  
at Urbana-Champaign

# 30

1992

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## Ernest Eliel: President of the American Chemical Society

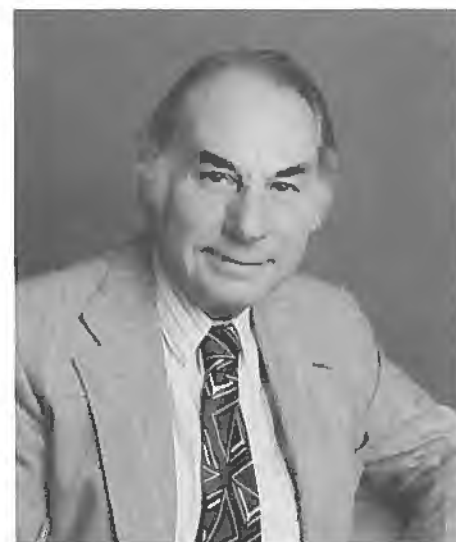
Professor Ernest Eliel, Illinois Ph.D. '48, is the 25th Illini to hold that office. His forebears include Illinois faculty, such as William McMurtie, William A. Noyes, Samuel W. Parr, Roger Adams, Carl S. Marvel, Charles C. Price, and John C. Bailar, and Illinois graduates such as Ernest H. Volwiler, Karl Folkers, William J. Sparks, Charles G. Overberger, Bernard S. Friedman, William J. Bailey, Gardner W. Stacy, Robert W. Parry, Fred Basolo and Clayton F. Callis.

For his term of office, Eliel has had an ambitious agenda, much of it related to broad educational objectives. His plans have gestated for a long time during his 30-plus years of service to the American Chemical Society. He has been a member of the Committee on Publications, off and on, for over 20 years and was very active in the Committee on Professional Training. He has been a councilor of the ACS since 1966. Eliel was chairman of the Division of Organic Chemistry in 1973, and has been a member of the board of directors continuously since 1985.

One of the reasons Eliel emphasizes educational issues is that this is an area in which ACS can be effective. The organization is constrained in what it can do to improve the employment situation of chemists and the problem of insufficient resources for research because these matters are closely linked to general economic, political and social issues over which the Society has limited influence. However, it can do a great deal about the quality of chemistry education at all age levels, and he reminds us that Roger Adams was one of the original organizers of the ACS Committee on Professional Training.

### Educational Issues and ACS Initiatives

According to Eliel, we lose students at the college level because our introductory courses tend to be dull, our freshmen courses too theoretical and our sopho-



*Photo courtesy of the American Chemical Society*

more courses too crammed with facts. Moreover, in institutions which require all students to take one or more science courses, very few select chemistry.

One corrective, already in process, is to develop an ACS-approved undergraduate curriculum in fields other than "pure" chemistry. These include curricula with a concentration in biochemistry, polymer science, material science, and chemistry education. Eliel would like to see an additional concentration in environmental chemistry. The latter could attract some of the environmental enthusiasts and open a wider employment market for students with a good background in fundamental chemistry.

To attract non-science majors, the ACS is developing a course, "Chemistry in Context," dealing with the chemistry around us. A comparable high school course, "ChemCom" (Chemistry in the Community), has already been introduced.

In addition to broadening the college chemistry curriculum, Eliel is concerned about the quality of chemistry instruction at the K-12 level. Because teachers in

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upper elementary, junior high, and even secondary schools often do not provide good science instruction, they "turn off" students at a time when they are most open to new ideas and give chemistry a bad image. The fault is not necessarily that of the teachers, many of whom struggle heroically despite minimal rewards and poor working conditions. The Education Division of the ACS, with Eliei's strong support, is developing good quality course material for high school students and teacher training programs at the elementary level.

Partly because of poor educational programs, the public understanding of chemistry and science in general is unsatisfactory, scientific literacy is markedly low, and chemophobia is high. As a remedy and to increase public awareness of the contributions of chemistry, Eliei has helped organize a permanent chemistry/science exhibit at the National Museum of American History at the Smithsonian Institution in Washington, D.C. The exhibit which is expected to open in late fall 1993, is presently being designed and constructed through the joint efforts of the ACS and the Smithsonian Institution. Partial support for the exhibit has come from the ACS which contributed \$5 million. Eliei guided the fund raising for Campaign for Chemistry which brought the ACS \$26 million and is used for various projects including the Smithsonian exhibit.

Eliei's concern about educational issues is partly due to his long experience as a teacher of both undergraduate and graduate students. Compared to other academic institutions, he considers the University of Illinois program one of the best. As he says, "The fact that the U. of I. takes good care of a very large number of undergraduates as well as a large crop of graduate students is very admirable. Many of the schools with good graduate programs pay relatively little attention to their undergraduates."

He finds that teaching of undergraduates has become increasingly difficult. Until recently, students in beginning chemistry courses at the University of North Carolina were not differentiated by prior preparation, aptitude, or area of interest. Teaching such a diverse group is not very effective, especially when current students "have not done enough crossword puzzles to hone their logical thinking." Graduate students are easier to teach but are becoming increasingly difficult to attract into academic careers because they receive "negative signals" about obtaining sufficient funds for research. The crux of the issue is not that

the amount of research funds is decreasing but that the cost of research is rising due to advances in instrumentation and other factors.

### **A Rocky Start**

Eliei himself has experienced the frustrations of obtaining adequate funding, especially during his early years at the University of Notre Dame. (Fortunately, research could be accomplished with much less money in those days.)

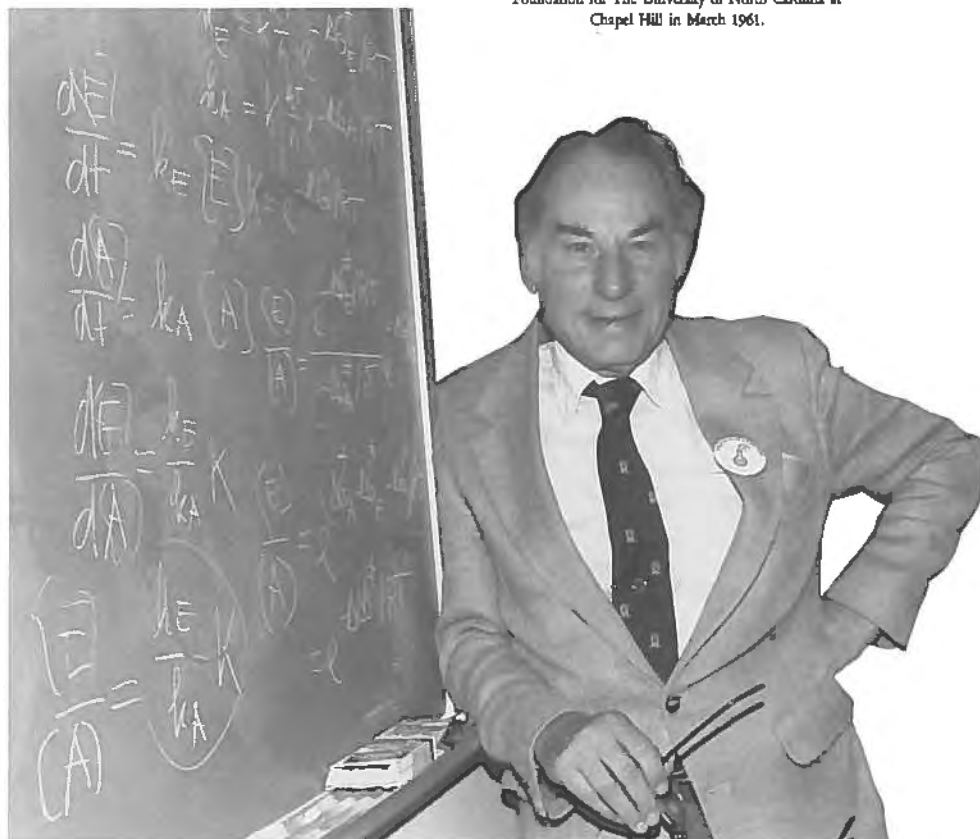
Eliei took a position at Notre Dame directly after receiving his Ph.D. in 1948 under the supervision of Harold Snyder. He is very grateful to the U. of I., not only because Professor Snyder was an excellent mentor but also, because the U. of I. was willing to accept him, a most unusual student who applied for entrance into the graduate program with a "doctorate" in chemistry from the University of Havana. What other American universities did not realize was that a doctorate in chemistry from the University of Havana was no more than a bachelor's degree with a senior thesis.

The University of Havana had totally inadequate facilities for instruction in chemistry, especially in the laboratory. Eliei's useful education during his five years in Cuba was largely a by-product of his work with a group of refugee scientists in a very good pharmaceutical laboratory owned by the dean of the medical school.

Until he came to the U. of I. in 1946, Eliei had experienced little formalized, sustained, advanced education. His studies at a rigorous high school in Cologne, Germany, were cut short by the prelude to WWII. In 1938, only a few months before the infamous "Kristallnacht" made further Jewish residence in Germany intolerable, the 16 year old Ernest was sent to Scotland to live with a kindly family and continue his education.

*The*  
**THOMAS JEFFERSON AWARD**  
*for 1991*  
*is presented to*  
**Ernest Ludwig Eliei**

Being that member of the academic community who through personal influence and performance of duty in teaching, writing and scholarship has best exemplified the ideals and objectives of Thomas Jefferson. The Thomas Jefferson Award was established by the Robert Earl McConnell Foundation for The University of North Carolina at Chapel Hill in March 1961.





## Library Drive Goes Over the Top

In 1940, the authorities decided that Eliel was potentially a "dangerous enemy alien" and deported him to Canada. He was detained in internment camps both in England and in Canada and tried without success to obtain a visa to the United States. The closest he could get was a visa to Cuba and he embarked on a remarkable odyssey from Canada, through the Caribbean, until he arrived in Cuba in 1941. Summing up his life, Eliel said, "I could never write a balanced autobiography because the first 25 years of my life were so extraordinary that the rest of my life would sound too dull in comparison."

### Stability and Success

The second half of the statement is debatable. After coming to the US in 1946 and finishing his American Ph.D. in two years, Eliel accepted a position at the University of Notre Dame where he stayed for the next 24 years. In 1962 he published *Stereochemistry of Carbon Compounds* which quickly became a classic and established his reputation in the field. The book is now "out of print" after 13 printings. An almost complete second edition has taken a very long time to write. In 1965 Eliel wrote *Conformational Analysis* with three co-authors, and since 1967 he has been co-editor of over 20 volumes of *Topics in Stereo-chemistry*.

As his renown spread, his honors mounted. In 1972 he was elected to the National Academy of Sciences and accepted the W.R. Kenan, Jr. Chair at the University of North Carolina at Chapel Hill. One of his most treasured honors is the North Carolina Award in Science that he received in 1986. This award is given annually to only one scientist in the state and is the highest honor that the state can bestow. Eliel received a D.Sc. (hon) from Duke University in 1983 and from the University of Notre Dame in 1990, demonstrating that his contributions during his 24 years at that university were duly appreciated.

Finally in 1991, Eliel received the Thomas Jefferson Award from the University of North Carolina. For the man who had come *From Cologne to Chapel Hill* and risen from the lowly status of interned enemy alien to become president of the American Chemical Society, this award from his adopted country has a special meaning. It cites Eliel for "Being that member of the academic community, who through personal influence and performance of duty in teaching, writing and scholarship, has best exemplified the ideals and objectives of Thomas Jefferson."

Thanks to the generosity of our loyal alumni and friends, the chemistry library drive surpassed its goal. As of June 1, 1992 we have taken in over \$219,000 — a conservative estimate since corporate matching funds are not included by university calculations until they are received. This may occur several months after a donor makes a gift.

The 100th birthday party of the chemistry library, celebrated on November 4, 1991 was a truly joyful event. Friends and colleagues from the university library and from the College of Liberal Arts and Sciences helped us to celebrate. Dr. Lester Coleman of Lubrizol chairman of the library drive, flew in for the occasion. As he presented the "check" for \$194,000 to the library, he promised to "smooth the rough edges" by giving us a further gift to bring us to the \$200,000 goal.

Changes at the library have been dramatic since funds from the endowment have been available to support purchases. The monograph budget, which had become a chimera, as purchases were deferred to maintain the most essential serials, has again become a reality. Recently, when a faculty member visited the library to ask whether it would be possible to purchase a nine-volume set entitled *Comprehensive Organic Synthesis*, the librarian proudly led him to the shelf where the needed volumes were displayed.

Jim Lisy, another faculty member, succinctly summarized the difference before and after the endowment. "Before we had the money we could only wait and hope we could get a complimentary copy from a publisher. Now we can actually buy the books we need." He recalled a frustrating instance when he had borrowed some essential materials through an interlibrary loan but had had to return the books before he was finished because another borrower was waiting. "With the endowment, I could ask the library to purchase the books and I have been using them right here ever since."

In honor of its 100th anniversary, the library acquired some interesting items in addition to monographs. A bronze plaque honors the donors of leadership gifts. A picture and summary of the work of the late Professor Thomas E. Phipps was donated by his son. One wall of the library displays the work of Professor Greg Girolami and Dr. Vera Mainz, who have constructed an intellectual genealogy of the current faculty of the chemistry department. In some cases they have



## Chemistry Library Fund

been able to reconstruct the intellectual lineage back to fourteenth century Padua. Dr. Coleman received his personal intellectual genealogy, starting with his advisor, Professor Marvel, and, in addition, he was presented with a symbolic key to the library.

Dean Faulkner of the College of Liberal Arts and Sciences, and himself a chemist of renown, summarized the importance of a library to the excellence of a program. "We cannot expect professors and students to produce outstanding work without the necessary tools," he said. "The library is one of the most essential tools of any scientist."

*Thanks to you, our generous supporters, our excellent library and our outstanding program can look forward to a great future for the next 100 years.*

# Klemperer Synthesizes Novel Molecules



Figure 1  
 $[(C_5H_5)_2Ti(Mo_5O_{18})]^{2-}$

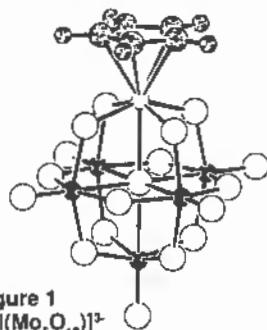


Figure 2  
 $[CH_3CN \subset (V_{12}O_{32}^{4+})]$

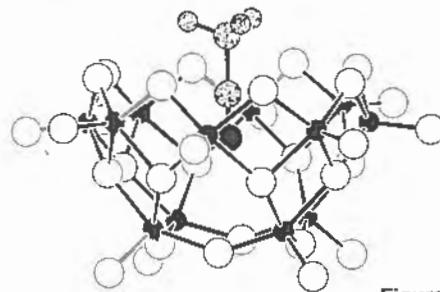
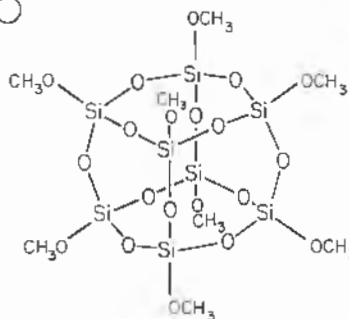


Figure 3  
 $[Si_8O_{12}](OCH_3)_6$



For his synthetic studies of oxide molecules and solids, Walter Klemperer has been awarded the 1992 ACS Award in Inorganic Chemistry. Until his studies were initiated, the chemistry of oxides in solution was relatively unexplored. His work has opened up new lines of research that he is continuing to explore with students and colleagues around the world.

Traditionally, oxides have dominated solid state inorganic chemistry and found widespread application, not only as structural materials such as cement and glass, but also as heterogeneous catalysts and catalyst supports, high temperature materials, electronic materials, optical materials, and, most recently, high temperature superconductors.

Klemperer's work, however, revolves around the solution chemistry of oxides, and raises new questions about the relationship between oxide molecules and solids: What kinds of organic and organometallic complexes can be made from oxides in solution? Can soluble oxides perform the chemistry normally associated with solid oxide catalysts? Can molecular analogues of solid oxide inclusion complexes such as zeolites be synthesized? What molecular growth pathways are followed when solid oxides are prepared from molecular precursors? Can inorganic solids be prepared from molecular building blocks in the same way organic polymers are prepared from molecular monomers? In addressing these questions, Klemperer has made dozens of new molecules, enough to open up entirely new areas of inorganic chemistry for investigation.

In the area of organometallic and organic chemistry, two new classes of hybrid molecular species have developed. The first class of complexes, called polyoxoanion supported organometallic complexes, contains organometallic moieties embedded in an oxide framework. Examples include the organotitanium complex  $[(C_5H_5)_2Ti(Mo_5O_{18})]^{2-}$  shown in Figure 1. Here, the crown is an organic molecule,  $C_5H_5$ , that has become attached to the oxide  $Mo_5O_{18}$  by a titanium center. In the second class of complexes, organic units are linked to the metal-oxygen framework by oxygen-carbon bonds, not metal-carbon bonds, as in the  $[CH_2Mo_3O_{15}H]^{2-}$  complex. Recent studies have shown that both classes of molecules are capable of performing chemistry normally associated with solid oxide catalysts. The organometallic complex  $[(C_8H_{12})Ir(P_3O_{10})]^{2-}$ , for example, can activate oxygen ( $O_2$ ) and effect oxygen atom transfer to the organic ligand,  $C_8H_{12}$ .

Molecular oxides also have been shown to form host-guest complexes with organic molecules that can be considered either as soluble oxide analogues of zeolites or as inorganic analogues of organic inclusion complexes such as cryptates. The acetonitrile complex  $[CH_3CN \subset (V_{12}O_{32}^{4+})]$  shown in Figure 2, for example, is one of a family of  $V_{12}O_{32}^{4+}$  complexes that show the shape-selective binding behavior expected from a rigid oxide-host framework.

Many traditional ceramic processing techniques utilize molecular oxide precursors, and Klemperer's studies have

begun to unravel the complex chemistry involved and use this understanding to design new materials on a molecular level. In one case, he used capillary gas chromatography to identify the molecular growth pathways followed during silica sol-gel processing. With this knowledge in hand, new forms of silica could be prepared using well-defined silicate cages as molecular building blocks. The silicate cube  $[Si_8O_{12}](OCH_3)_6$  shown in Figure 3, for example, can be polymerized to generate a very high surface area from silica. In a closely related project, classical cement chemistry has been used to generate magnesium phosphate composites using polyphosphate chains as molecular building blocks.

In nominating him for the ACS Award, one of Klemperer's colleagues described him as "one of the most original and penetrating researchers in inorganic chemistry. (His) synthetic triumphs in the synthesis of polyoxoanion compounds and especially his preparation of organometallic derivatives have been seminal in propelling this field forward."

Klemperer is also considered a leader in the field of sol-gel chemistry. Nevertheless, as Klemperer himself puts it, "The bottom line is to make things that no one has ever dreamed of before, with novel structures and unknown applications down the road." His past research suggests that he is well along in turning this dream into reality.



## Subtle Changes Transform Chemical Engineering Department

In a rare interlude between appointments, Professor Richard Alkire, Head of the Department of Chemical Engineering, described the cumulative effect of internal and external changes that have occurred since the mid-80s.

Perhaps the most striking factor is the turnover in staff. Since 1985, several eminent members of the department have retired or left, and six of the 12 current faculty have arrived. They have brought a variety of new techniques and research interests in areas such as colloids, surface science, statistical mechanics, liquid polymers, and biotechnology, all applicable for study of the chemistry and engineering of phenomena occurring in a small space. Many of the phenomena currently under investigation are too small to see or feel in the traditional sense, and require sophisticated new laboratory techniques. Among the new techniques are atomic force microscopy and lithography. They permit the scientist to explore chemical processes at the microscopic and molecular level and greatly enhance the level of control that can be exerted over a chemical process under study. The potential of these and other new techniques is virtually staggering in terms of what they will make possible in the foreseeable future.

One result of this shift is that the department's laboratories look entirely different. They are full of sophisticated equipment that is costly to acquire and maintain. As these new techniques open up new areas of investigation, the knowledge base transmitted to students undergoes subtle changes as well. The basic principles have not changed but the examples used to illustrate the principles have altered considerably, drawing on the new subjects and styles of investigation.

This is just one of the many changes that have affected the undergraduate curriculum. Another is the closer interconnections between different parts of the curriculum. In the traditional undergraduate program, students took a "projects course" in which they worked in a classroom, under the supervision of a faculty member, carrying out a research project which required the use of standard techniques. Today, undergraduate students are no longer compartmentalized. They work in research laboratories as part of a team and become experienced in the use of sophisticated research equipment. They also gain by closer contact with more experienced colleagues because those with whom they interact are faculty and graduate students in addition to the undergraduates in their cohort. Therefore, the BS trained chemical

engineer is a more sophisticated employee when he or she enters the labor market. This is a help to potential industrial employers who are increasingly hiring BS level chemical engineers, especially while the economic environment forces them to shrink their R & D departments.

Another very interesting change in the undergraduate curriculum is the incorporation of communication skills. As corporate cultures have become more horizontal, information becomes more valuable when it can be shared. Therefore, students are trained in communication skills to facilitate the sharing process. Their laboratory reports and oral presentations are critiqued by an instructor with a background in English. Students learn to work in teams and to prepare joint presentations which are then videotaped, revised and further polished.

The increasing emphasis on horizontal communication is one of the external changes affecting the curriculum. The public's concern over environmental and ecological issues is another. Students entering the program today realize that they need to become conversant in the techniques of chemical engineering in order to deal with the urgent problems for which society demands solution, including pollution and toxicity. Today's students are socially conscious, and deeply concerned about ethical issues. In addition, because they are verbal and have broad interests, they are likely to make a major contribution to the political process by communicating to the public how engineering serves society.

In the race to adapt to the changing environment, Alkire expects that there will be increased specialization among the nation's chemical engineering departments. He cites several reasons why the department at the U. of I. is particularly well positioned and will continue at the top as a world class program.

One reason is that the close ties of chemical engineering to both chemistry and biochemistry will be an increasingly important feature. The School of Chemical Sciences is a very strong intellectual unit. As the focus of investigation shifts to material processing, electronics, and biomedical fields, the tie to chemistry is all important. Of the top chemical engineering departments in the country, only those at Berkeley, and Cal Tech are equally close to chemistry.

Another reason that this program is well situated is that the University of Illinois has very strong programs in the



Professor Richard Alkire

physical sciences and engineering, and that the boundaries between the departments are permeable. There are strong interconnections between all these fields and staff in the different departments appreciate each other's contributions. The U. of I. has had a lengthy tradition of interdisciplinary research based in the Materials Research Laboratory and in the Coordinated Science Laboratory, which were established in the 50s. The tradition of joint research is strong and gives the chemical engineering department a special edge, especially in the present climate where team efforts are rewarded.

Finally, this university has a phenomenally rich infrastructure. The School of Chemical Science facilities, including the "shops," the special purpose labs, the storerooms, the library, can only be described as superlative. One of the reasons that our chemical engineering faculty are the most productive in the country in terms of the number of Ph.D.'s produced per faculty member is because, our students have access to the variety of services which facilitate their work.

In summary, Alkire said, "A few years ago, it was clear that something dramatic was about to happen at the U. of I. in a relatively short period of time. A comparable situation had not existed since the late 40s and early 50s when H.F. Johnstone brought in faculty such as Drickamer, Westwater, Baron, Peters and Hanratty. We now have a unique opportunity to create new strength that will last well into the 21st century."

## Where Do We Stand?

# STILL AT THE TOP



A little rain did not dampen the spirits of this year's excellent group of graduates which included four who received NSF fellowships for graduate study. Two of the recipients are going to Scripps Oceanographic Institute, one to Cornell University and one to California Institute of Technology.

Professor Girolami, this year's commencement speaker, commended the students for "having graduated from one of the most demanding programs in the country" and offered them parting advice on "how to be a successful scientist in three easy steps: pay attention to details, look at things from a different angle or new perspective, and persevere, persevere, persevere."

Our high standing among the country's chemistry programs was buttressed by the recent ACS report of the nation's most productive chemistry programs and by incomplete information on employment. The ACS report, reproduced in *C&EN*, May 18, 1992, showed that in 1990-91 our program ranked first in total bachelor degrees, second in certified bachelor degrees and third in doctoral graduates. A very successful recruiting program for new graduate students, who will be starting their studies in fall, 1992 suggests that our high standing in doctoral degrees will continue.

Despite the downturn in the economy, the placement office indicates that the number of undergraduate students reporting employment is normal for the close of the academic year. Of course, data are very incomplete but nevertheless encouraging. Students completing their

doctorates are finding the search for suitable employment longer and more difficult.

A further indicator of our standing is that we have attracted three outstanding young faculty during the past year. Two are physical chemists and the third is interested in the field of bioanalytical chemistry. A brief description of our new colleagues follows below.

## Martin Gruebele

Martin Gruebele joined our chemistry department after completing his Ph.D. at Berkeley in 1988 followed by a postdoc at Cal Tech. One of the reasons he chose the University of Illinois was because of its interdisciplinary focus, as exemplified by the Beckman Institute. The photonics group at the Beckman Institute serves as a good anchor for his planned research in laser chemistry.

His studies integrate energy-resolved and pulsed laser techniques to investigate and to influence the course of a chemical reaction in progress. The combination of the two will allow him to create a coherent motion of the atoms in the reactant, and to easily manipulate the motion as the reaction proceeds through the transition state to the products. The location of the atoms can be pinpointed within the limitations of the Heisenberg uncertainty principle, allowing exploration of a wide range of reactive configurations. Initial studies will be carried out in the gas phase in a Flow cell or molecular beam apparatus, with condensed phase experiments along similar lines planned for the future.



Harbinger of the future: Demolition at the corner of California Street and Goodwin Avenue to make way for the new chemical sciences building.

Gruebele will be working both with the theoretical chemistry group in Noyes Lab and with the photonics group at the Beckman Institute. In both places, he has found a warm welcome and congenial colleagues with whom he can interact. He is also planning to teach, beginning this fall, probably a course in quantum mechanics. In addition, he is writing numerous proposals for further funding in order to set up his research group.



## Nancy Makri

Nancy Makri has joined the theory group in the chemistry department to extend her studies in quantum mechanics. Originally from Greece, where she completed her undergraduate work at the University of Athens, she received her Ph.D. from the University of California at Berkeley in 1989. Thereafter she spent two years as a junior fellow at Harvard before coming to the University of Illinois.

She is interested in phenomena that cannot be adequately described by classical mechanical theory, such as electron transfer in very complex molecules including biological systems. She is developing approximate, and, in some cases, exact theories to understand proton transfer reactions and hydrogen diffusion on surfaces. Prior theories have dealt with equilibrium properties, building on the work of the late physicist, Richard Feynman. Makri is working out the theoretical framework for studying non-equilibrium processes including tunneling rates of electrons and protons through a potential barrier, which is important for a more complete understanding of oxidation reactions and synthesis.

Makri was a junior fellow at Harvard, in the second year of a three year postdoctoral fellowship, when she was approached with an offer from the University of Illinois. She received several offers from prestigious universities on both coasts but is convinced that she made the right decision to come to Illinois. She enjoys the friendly atmosphere within the department and the wide range of activities available in the community. Unfortunately, she has been too busy to explore the options within and outside the university because she is preparing lectures for a course that she has not taught previously and will undertake another course next semester.

In the four months since she arrived, Nancy Makri has developed a new, more powerful technique for studying the quantum dynamics of large systems. She has also developed the nucleus of a research group. A postdoc has come from Moscow to work with her and she has one graduate student. For her laboratory she needs a work station for each member of her group and expects to acquire a more powerful computer for the entire group in the near future. She has a Petroleum Research Fund grant through the ACS and is thinking about further proposals. She has plenty of ideas for research, but, like everyone else, she is short on time.

## Jonathan V. Sweedler

Sweedler's research interests bridge the worlds of analytical chemistry and cellular neurobiology. Therefore, the opportunity to become part of the U. of I. Neurosciences Program and the Neuronal Pattern Analysis Group of the Beckman Institute helped lure him to the University of Illinois. His research area is the differential packing, distribution and release of neuropeptides in the neurons of the abdominal ganglion in the giant marine mollusk *Aplysia californica*.

Sweedler received his Ph.D. from the University of Arizona in 1989. He was an NSF postdoctoral Fellow at Stanford University from 1989-1991 and came to the University of Illinois in the Fall of 1991.

To carry out his research on the highly complex system of neurotransmission of the cell requires sensitivity that approaches the detection of single molecules. Therefore, Sweedler is developing extremely sensitive analytic methodology and instrumentation. He uses capillary zone electrophoresis separation followed by multichannel laser induced fluorescence. In addition, he has developed a unique fluorescence detection system with which he is able to increase conventional cell sampling techniques by several thousand fold.

Because his studies require both chemical and neuroscience instrumentation, his research is exceptionally expensive. A generous startup package has been augmented by instrumentation gifts from two private companies. He also has been awarded an NSF starter grant and a Dreyfus New Faculty Award. His group already consists of three graduate students and two undergraduates. One of the graduate students is an MD/Ph.D. candidate, interdisciplinary like himself.

He enjoys the university and surrounding environment, even though he misses the mountains of his native California. In addition to setting up his laboratory and teaching, which he finds enjoyable though time consuming, he has already submitted nine proposals for additional funding. His biggest problem is to juggle the multiple responsibilities that accompany his multiple affiliations, which make his research possible.



Martin Gruebele



Nancy Makri



Jonathan V. Sweedler

## AIChE Student Chapter Adds "Real" Life

There's a lot of life outside the classroom for members of AIChE. Some of it is serious. With the help of industry representatives, students arrange for plant trips for a foretaste of life after graduation. These trips are especially informational because students have an opportunity to speak informally not only with other engineers but also with managers and potential co-workers.

Another popular activity is "mock interviews." Professional recruiters come to campus and offer individual students abbreviated employment interviews, followed by critiques of the student's interviewing skills. Several meetings are set aside for talks by engineers in industry on topics such as ethics in business, environmental issues, and process technology which are not covered in the classroom.

AIChE offers many opportunities for fun and socializing. There is a volleyball team in the fall and a softball team in the spring.

*continued on back page*



▲ Wendy Burfinend, vice-president of the AIChE chapter, explains the protein crystal exhibit at the Engineering Open House. To her right is the red ribbon won by this presentation

◀ Deanna Heffron describes the effects of oil spills on the environment. Her presentation is part of an exhibit on dispersants.

## Biochem Grad Students Help Govern Their Department

In 1988, Professor Robert Switzer, at that time the new head of the Biochemistry Department, sought input from graduate students on a new policy. The response was so helpful and constructive that he decided to ask for student advice on future issues. The result was the Biochemistry Graduate Student Organization (BGSO).

Over time, the BGSO has taken on new functions and increased the range of its activities but it retains its basic purpose, to provide a channel for biochemistry students to communicate with faculty about departmental issues.

One recent issue on which the students successfully convinced the faculty was in initiating a formal rotation among the labs for entering graduate students before a final choice of advisor is made. An issue coming up soon is whether to assign a teaching assistant to a course that traditionally has been handled by a professor without student aid.

A major function of the BGSO is to plan and organize the annual Spring Allerton Conference. Students carry out every facet, including choosing presenters, inviting and bringing prospective graduate students, making arrangements for meals and lodging, planning the social events and even raising a major portion of the funds to pay for the 1½ day program. Prior to the Allerton confer-

ence, members of the BGSO act as recruiters, calling potential students who have been accepted for admission, urging them to attend the conference and facilitating their attendance when they arrive. About half the costs of the conference are paid for by Monsanto, and the students raise the remainder, both by contacting other private companies for donations and by inducing vendors to contribute in return for an opportunity to display their products.

The BGSO is also active in the educational program of the department. The students choose one weekly seminar speaker each semester. Last semester, because of tight budgets, they also raised the money to cover part of the speaker's expenses. One source of funds is the popular T-shirts that are sold at the Allerton conferences.

As a result of the variety of joint efforts, Kevin says, "We get along really well with all the faculty. Of course, our



Kevin Glenn, vice-president of BGSO, and Ramona Bieber, president, discuss departmental issues with Professor Robert Switzer, head of the Biochemistry Department

faculty are also a very reasonable and compatible group. The laid back, friendly atmosphere was one of the reasons that I decided to come to the University of Illinois for graduate studies rather than some other MD/Ph.D. program." Professor Switzer shares these sentiments. As he says, "The BGSO is not like a student union or a forum for griping. I find the student input helpful, supportive and constructive. They root for us by helping to recruit good students and they help to make this a good place to study with their constructive suggestions."



## William H. Lycan Receives Alumni Award



William G. Lycan with his father, William H. Lycan

At the May commencement exercises, the University of Illinois Alumni Association presented Dr. Lycan, Ph.D. '29 its Distinguished Service Award. The citation said, in part, "William H. Lycan earned three degrees from the University of Illinois, then left its world-renowned Department of Chemistry in 1929 to pursue a career in industry. But the campus never left his heart. Bill Lycan's contributions to his alma mater began in those early days, when he worked to give other talented young chemists a promising start. In later years, after success had come his way, he and his late wife, Janet, also an Illinois graduate, made many more substantial gifts to the University. But, in their self-effacing way, they declined public recognition."

In 1990 the Lycans established a Faculty Excellence Fund in the School of Chemical Sciences to provide programs that would attract and retain faculty. In addition, they established the Lycan Professorship. The Lycans have specified that their gifts were given in honor of Roger Adams and Carl Shipp Marvel, two of the most famous of the well known Illinois chemistry professors.

At a reception given by the School in his honor, Dr. Lycan responded to praise for his long standing friendship and support by insisting that he has received more from the School than he could ever repay.

In gratitude for all that he has done, the School presented our friend "Bill" Lycan a plaque with his likeness as a token of our appreciation. A duplicate will hang in the library so that future generations of staff and students will recognize the benefactor whose gifts have helped this program to maintain its standing as one of the very best in the nation.

The citation on his Alumni Award concluded as follows: "For his many contributions to his University and to chemistry, we are proud to honor William H. Lycan with the University of Illinois Alumni Association's 1992 Distinguished Service Award."

## Former Faculty Member Wins Pauling Medal



Rudolph Marcus, Professor of Chemistry at the U. of I. from 1963 to 1978 received the 1991 Pauling Medal. Professor Marcus is now at the California Institute of Technology. He was honored for his theories of chemical reaction rates that have been used in almost every area of chemistry.

The Pauling Medal is sponsored jointly by the ACS of Oregon, Portland and the Puget Sound Local Sections. It is given for outstanding contributions to the field that have merited national and international recognition. Professor Marcus has been widely recognized. He received the ACS Irving Langmuir Award in Chemical Physics (1978), the Chandler Medal, Columbia University (1983), the Wolf Prize in Chemistry (1985) and the ACS Peter Debye Award in Physical Chemistry (1988).

### KEEP IN TOUCH

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## Faculty Honors

**Steven C. Zimmerman**, Professor of Chemistry, has been named a University Scholar. This is a mark of high distinction. Scholars are selected from both U. of I. campuses and from a wide variety of disciplines for outstanding contributions to research and teaching.

**Gregory Girolami**, Professor of Chemistry, was named a University Scholar in 1990.

**Theodore Brown**, Professor of Chemistry and Director of the Beckman Institute, served as chairperson of the panel for the final selection of 15 Presidential Faculty Fellows in Science. Under this new federal program, the research activities of 15 young faculty members in the sciences and engineering will be supported by the President of the United States.

Professor Brown also received a Professional Achievement Award from Illinois Institute of Technology.

**William Schowalter**, Professor of Chemical Engineering and Dean of the College of Engineering, has been elected a director of the AIChE for a three year term.

**Paul C. Lauterbur**, Professor of Chemistry and of Medical Information Science, is one of only six recipients of the 1992 Lincoln Laureate, the state's highest award.

**Peter Beak**, Professor of Chemistry, has been named a Jubilee Professor by the University of Illinois College of Liberal Arts and Sciences.

**Herbert S. Gutowsky**, Professor of Chemistry, has been awarded the Pittsburgh Spectroscopy Award from the Spectroscopy Society of Pittsburgh.

**Eric Jacobsen**, Professor of Chemistry, has been awarded one of the prestigious David and Lucile Packard Fellowships for 1991. In addition, he was appointed a U. of I. Beckman Fellow for 1991.

**Douglas Lauffenburger**, Professor of Chemical Engineering, of Cell and Structural Biology and of Bioengineering, has been elected a Fellow of the American Institute for Medical and Biological Engineering as of January, 1992.

Professor Lauffenburger also received the 1992 Curtis W. McGraw Research Award of the American Society for Engineering Education.

**John Katzenellenbogen**, Professor of Chemistry, has been elected a Fellow of the American Academy of Arts and Sciences.

**Stanley Smith**, Professor of Chemistry, has won the 1992 Louis Robinson Award. The award is funded by IBM and the recipient is selected by the EDUCOM Board of Trustees. The program was created three years ago to "stimulate and recognize advances in using information technology to improve teaching and learning."

**Charles F. Zukoski**, Professor of Chemical Engineering, has been awarded a Fulbright grant to conduct research and lecture at the University of Melbourne in Melbourne, Australia in the spring of 1992. In addition, he has received the Everitt Award for Teaching Excellence by the College of Engineering, triggered by an excellent set of supporting letters from undergraduate students.

**Walter Klemperer**, Professor of Chemistry, has been appointed an associate in the U. of I. Center for Advanced Study for the academic year 1992-93.

**Kenneth S. Suslick**, Professor of Chemistry, has been appointed a U. of I. Beckman Associate for 1991.

**Andrew Joshua Wand**, Professor of Biochemistry, received a U. of I. Beckman research award for 1991.

**Rebecca J. Simon**, Director of Placement and Undergraduate Advising, received an Alvah K. Borman Award from the Cooperative Education Division of the American Society for Engineering Education.

## In Memoriam

**William Edward Bunney**, Ph.D. '26 (Biochemistry with Rose) died on January 8, 1992. He was a director and Vice President of E.R. Squibb and Sons in charge of worldwide manufacturing. He took part in the discovery of an essential amino acid in humans, worked to stabilize diphtheria toxin for use as a vaccine, and helped develop DPT, a vaccine still used to immunize children against diphtheria, whooping cough and tetanus.

**Glenn Cook**, Ph.D. '61 (Chemistry with Belford) died in August, 1990. He had been a project manager in the F&S Energy Storage Program of the Electrical Power Research Institute in Hayward, CA.

**John C. Cowan**, Ph.D. '38 (Chemistry with Marvel) died on February 20, 1991.

**Margaret DaVault**, A.B. '23 (Chemistry) died in January, 1992. She was a teacher in the Christian Education Program at the First Presbyterian Church in Dowling Park, IL.

**Jane A. Doble**, M.S. '31 (Chemistry) died on August 19, 1991.

**Laddie F. Dobry**, Ph.D. '35 (Chemistry with Keyes) died July 31, 1991. He was listed in *Who's Who in Commerce and Industry*.

**Herbert Fineberg**, Ph.D. '41 (Chemistry with Marvel) died last winter. He had been a chemist with the Ashland Chemical Company.

**Ronald J. Fitzgerald**, Ph.D. '68 (Chemistry with Drago) died on April 9, 1991. He had been Clinical Adjunct Professor at the Southern California School of Theology in Claremont, CA and was a psychiatric consultant at the Clinebell Institute.

**Glen Gordon**, B.S. '56 (Chemistry), who received the 1992 ACS Award for Creative Advances in Environmental Science and Technology, died on January 13, 1992. Gordon won the award for his development of "receptor modeling," a method that permits the sources of particles in the air to be identified by the amounts of certain trace elements carried by the particles. He had been a professor at the University of Maryland in College Park. He received his Ph.D. from the University of California at Berkeley in 1960.

**Donald C. Isted**, B.S. '36 (Chemistry) died on April 24, 1991. He worked for the Shell Oil Company for 33 years as a process supervisor, retiring in 1970.

**Saul Ian Kreps**, M.S. '38 (Chemistry) died on November 18, 1991. Most recently Dr. Kreps had been a chemical engineer for the Maktechim Chemical Works in Israel until his retirement in 1983.

**Wendell Landmann**, B.S. '41 (Chemistry) died on May 3, 1991. He was King Ranch Professor of Animal Science at Texas A & M University. In 1969 he was named head of the departments of biochemistry and biophysics. He is credited with discovering the enzyme that gives meat its flavor, perfecting a protein supplement from animal blood, and finding a way to tender stretch beef to enhance its use.



**William G. Meade**, B.S. '38 (Chemistry) died on November 26, 1991.

**Pablo M. Nicolas**, B.S. '33 (Chemical Engineering) died on November 11, 1991.

**Richard S. Schreiber**, Ph.D. '35 (Chemistry with Shriner) died on March 7, 1992. He had been Vice President for Research at the Upjohn Chemical Company and had retired from the board of directors in 1971. He was credited with bringing Upjohn into the modern age of pharmaceutical research. Many of his contributions were in the field of steroid research. Today, Upjohn is the largest producer of bulk steroids in the world. Dr. Schreiber was editor of Volume 31 of *Organic Syntheses* and a member of its board of directors from 1955 to 1989.

**Herbert G. Schultz**, B.S. '49 (Chemical Engineering) died on January 31, 1991. He had retired from Citgo Petroleum Corporation in Tulsa, OK.

**William Shannon**, Ph.D. '41 (Chemistry with Englis) died in December, 1991. Before starting his own consulting firm, he was with Jewel Companies, Inc., where he headed the chain's sausage manufacturing operations.

**H.G. Swope**, B.S. '26 (Chemistry) died on July 3, 1989.

**Charles M. Wolfenberger**, B.S. '25 (Chemistry) died on September 8, 1991. He was a chemist with Acme Steel.

## Alumni News

### Hanford and Holmes Elected to Inventors Hall of Fame



W.E. Hanford



Donald Holmes

**W.E. "Butch" Hanford**, Ph.D. '35 (Chemistry with Adams) and the late **Donald Fletcher Holmes**, Ph.D. '34 (Chemistry with Adams) were elected to the National Inventors Hall of Fame in 1991 for the invention of polyurethane. Their 1942 patent is the basis for the chemistry in the manufacture of all polyurethanes. At the time of the discovery both were working at DuPont.

In 1942 Hanford left DuPont to become director of research at GAF, a position he held until 1946. He was vice president of research at M.W. Kellogg from 1946-57 and at Olin from 1947-68. At that time he became director of research at World Water Resources, Inc.

Hanford was awarded the Chemical Industry Medal of the American Section of the Society of Chemical Industry in 1961. He received the Pioneers Award in 1967 and the Gold Medal of the American Institute of Chemists in 1974.

### Parry Wins Priestley Medal

**Robert W. Parry**, Ph.D. '46 (Chemistry with Bailar), professor of chemistry at the University of Utah, was awarded the 1993 Priestley Medal by the ACS. Parry's thesis work on metal coordination compounds set the stage for much of his later research on coordination chemistry of the non-metal p-block elements, such as boron and phosphorus. Also following in Bailar's footsteps, Parry involved himself in ACS affairs, culminating with his role as ACS president in 1982.

### Krebs Receives LAS Award

**Edwin G. Krebs**, A.B. '40 (Chemistry) will receive a 1992 College of Liberal Arts and Sciences Alumni Achievement Award from the University of Illinois. Dr. Krebs, Professor of Pharmacology and Senior Investigator of the Howard Hughes Medical Institute at the University of Washington in Seattle, was honored for his fundamental scientific contributions. Professor Krebs is a member of the National Academy of Sciences and a fellow of the American Academy of Arts and Sciences. In 1991 he was co-recipient of the Robert A. Welch Award.

### The Classes

'20 **Dale F. Babcock**, Ph.D. '29 (Chemistry with Phipps) retired from DuPont in 1971.

The library in Collum, IL, has been named for **Arnold Beckman**, M.S. '26 (Chemistry), who donated the funds for purchase of the building.

'30 **Charles H. Fisher**, Ph.D. '30 (Chemistry with Fuson) was recognized for his outstanding accomplishments by Roanoke College on the occasion of the college's sesquicentennial celebration.

**H.A. Hashbarger**, B.S. '37 (Chemical Engineering) retired from the Monsanto Co. in 1981.

**Vernon G. Parker**, B.S. '36 (Chemical Engineering) has retired after 30 years as a patent attorney with Goodyear in Akron, OH.

'40 **Peter M. Bernays**, Ph.D. '42 (Chemistry with Clark) retired as documents analysis manager at Chemical Abstracts Services in 1988.

**James L. Johnson**, Ph.D. '49 (Chemistry with Adams) retired from the Upjohn Company in 1983.

**Hugh W. Johnston**, M.S. '46 (Chemistry) has retired as professor of chemistry from Whitworth College in Spokane, WA.

**Robert W. Powers**, Ph.D. '46 (Chemistry with Wall) retired in 1986 from General Electric Research and Development after 35 years of service.

**Anthony W. Schrecker**, Ph.D. '48 (Chemistry with Adams) was senior research biochemist with the National Cancer Institute of the NIH before his retirement in 1982.

**Douglas Skoog**, Ph.D. '43 (Chemistry with Englis) received the 1992 Award for Excellence in Teaching, co-sponsored by the Division of Analytical Chemistry of the ACS and E.I. du Pont de Nemours and Co. He had been associate executive head of the chemistry department at Stanford University until his retirement in 1976. He is an associate to the ACS Committee on Professional Training and was active in the NSF Advisory Council on College Chemistry.

**Carleton A. Sperati**, Ph.D. '41 (Chemistry with Fuson) received the Frank W. Reinhart Award at the Committee D-20 on Plastics in San Diego. He was commended for outstanding contributions to ASTM in the leadership of terminology standardization as Convenor of ISO/TC61 on Plastics Working Group on Special Vocabularies. Dr. Sperati had been associated with DuPont from 1941 to 1978.

**William A. Wier, Jr.** M.S. '49 (Chemical Engineering) is responsible for the support functions and services in a chemical R&D laboratory at Westvaco Corp. in North Charleston, SC.



'50

**Albert Babb, Ph.D. '51** (Chemical Engineering with Drickamer) received the Clyde Shields Distinguished Service Award from the Northwest Kidney Foundation at its

third annual Celebration of Excellence. The award was given to Dr. Babb for creating an automated dialysis machine that reduced the cost of treatment. He also created the first home dialysis machine.

**Roy A. Broker, B.S. '52** (Chemical Engineering) is an electrochemist with Elken Metals Co. in Marietta, OH.

**Robert N. Eby, Ph.D. '58** (Chemical Engineering with Johnstone) is president of Eby Associates, Inc. in Lexington, MA. The business serves clients who are using or manufacturing chemicals.

**Adrian S. Fox, B.S. '57** (Chemistry) has been appointed manager of hydrogels R&D by Nepara, Inc., a specialty chemical manufacturer in Harriman, NY.

**Filon A. Gadecki, B.S. '54** (Chemistry) was named a senior research associate in the Acrilan Technology organization of Monsanto Chemical Co.

**Ray L. Hauser, B.S. '50** (Chemical Engineering) was awarded a Distinguished Engineering Alumni Award by the University of Colorado at Boulder. He is a director of Hauser Chemical Research based in Boulder, CO.

**Mary Fung Koehler, B.S. '56** (Chemical Engineering) is president and broker of Koehler Realty, Inc. in Seattle, WA. She received her J.D. from the University of Washington in 1968 and practiced law from 1969-85.

**John H. Law, Ph.D. '57** (Biochemistry with Carter) has been elected to membership in the National Academic of Sciences. Dr. Law is professor of biochemistry and director of biotechnology at the University of Arizona in Tucson.

**Sung Moon, B.S. '56** (Chemistry) is professor of chemistry at Adelphi University in Garden City, NY. He received a Ph.D. in organic chemistry from MIT in 1959.

**Robert M. Nowak, Ph.D. '56** (Chemistry with Marvel) has been elected to the National Academy of Engineering. Dr. Nowak is chief scientist and director of central research and development for Dow Chemical Co.

**William B. Retallick, Ph.D. '53** (Chemical Engineering with Johnstone) is a consulting engineer in private practice.

The Center for Creative Photography at the University of Arizona was named for **John P. Schaefer, Ph.D. '58** (Chemistry with Corey). Dr. Schaefer was president of the University of Arizona from 1971 to 1982.

**Edward Doyle Slifer, Ph.D. '55** (Biochemistry with Carter) is director of the laboratory at St. Vincent Memorial Hospital in Taylorville, IL.

**William F. Spencer, M.S. '50** (Chemistry) is a research leader, pesticides and water quality research unit, ARS-USDA, U.S. Salinity Laboratory, Riverside, CA. He is also adjunct professor at the University of California in Riverside.

**George P. Speranza, Ph.D. '51** (Chemistry with Fuson) was honored by Texaco Inc. for earning his 100th patent. He is a research fellow of Texaco Chemical Company's Austin Laboratories in Austin, TX.

**Paul Weller, B.S. '57** (Chemistry) is president of Framingham State College in Framingham, MA.

**Leslie M. Werbel, Ph.D. '57** (Chemistry with Adams) is a senior research fellow at Warner-Lambert/Parke-Davis.

**James D. Winefordner, Ph.D. '58** (Chemistry with Malmstadt) was honored by the Society for Analytical Chemists of Pittsburgh for his contributions to chemistry education. He is chair of the analytical division of the department of chemistry at the University of Florida.

**Robert L. Wixom, Ph.D. '52** (Biochemistry with Rose) is professor of biochemistry at the University of Missouri in Columbia, MO. He is chair of the biological sciences sector of the graduate faculty senate and chair of the university-wide environmental affairs council.

**Donald E. Woessner, Ph.D. '57** (Chemistry with Gutowsky) has received the Southwest Regional Award of the ACS. Dr. Woessner is an industrial chemist with the Mobil Research and Development Corporation in Dallas, TX.

'60 **Frederick S. Brown, Ph.D. '67** (Biochemistry with Hager) is vice president and director of group development for TRW's Space and Technology Group. He has played a leading role in the Viking Lander Biology Experiment and was project manager of the Mars Surface Chemistry Project.

**Donna K. Fitzgerald Chandler, B.S. '64** (Teaching of Chemistry) is a senior scientific reviewer, Division of Biological Investigation in New Drugs, Center for Biologics Evaluation and Research at the Food and Drug Administration. She completed her Ph.D. at Oklahoma State University in 1969 as well as postdoctoral training in microbiology and immunology. She was chair of the Mycoplasma Division of the American Society for Microbiology in 1988-89.

**David Cushman, Ph.D. '66** (Biochemistry with Gunsalus) was co-recipient of the ACS Award for Creative Invention sponsored by Corporation Associates. He is a principal scientist at Squibb Institute for Medical Research in Princeton, NJ.

**Joseph C. Deck, Ph.D. '66** (Chemistry with Gutowsky) has been appointed interim chancellor at UMass Dartmouth. Dr. Deck is dean of the College of Arts and Sciences.

**Helen Elsbernd, Ph.D. '69** (Chemistry with Haight) is vice president for educational affairs at Teikyo Marycrest University in Davenport, IA.



**John P. Engstrom, B.S. '64** (Chemistry) has received a Corporate Marketing Excellence Award from DuPont.

**Stanley L. Hager, B.S. '68** (Chemistry) is a senior research scientist with ARCO Chemical Co. in South Charleston, WV, working in the area of polyurethane foam technology.

**Sam Hohmann, B.S. '69** (Chemistry) is director of the healthcare information services department of MMI Companies, Inc. in Deerfield, IL. He received a Ph.D. in biomedical engineering from the U. of I. Medical Center in 1988.

**James Allen Holt, Ph.D. '61** (Biochemistry with Wold) is a program officer for central and eastern Europe at NIH in Bethesda, MD.

**Leonard V. Interrante, Ph.D. '64** (Chemistry with Bailar) has been named editor of *Chemistry of Materials*, a bi-monthly journal of the American Chemical Society that began publication in 1989. Dr. Interrante has been professor of chemistry at Rensselaer Polytechnic since 1985.



**Mitsuru Kubota**, Ph.D. '60 (Chemistry with Brown) has received the ACS Award for Research at an Undergraduate Institution for 1991. This award is sponsored by the Research Corporation. Dr. Kubota is professor of chemistry at Harvey Mudd College.

**Richard Larson**, Ph.D. '68 (Chemistry with Rinehart) has been cited for the discovery that by adding riboflavin to contaminated water and then exposing the water to sunlight, certain pollutants are destroyed within minutes. Dr. Larson is with the University of Illinois Institute for Environmental Studies.

**Nancy Leigh**, B.S. '65 (Chemistry) is an instructor at Spoon River College in Canton, IL.

**Peter E. Liggett**, B.S. '69 (Chemistry) has accepted a position as director of vitreol retinal surgery at the Yale School of Medicine.

**Marilyn Magnuski**, B.S. '64 (Chemistry) is a software documentation specialist with the Honeywell Co.

**Robert S. Neale**, Ph.D. '60 (Chemistry with Rinehart) retired from Union Carbide in 1986 and afterwards taught at the University of North Carolina.

**John F. Niblack**, Ph.D. '68 (Biochemistry with Gunsalus) has been appointed president, central research at Pfizer, Inc.

**Randall G. Ocken**, B.S. '69 (Teaching of Chemistry) teaches chemistry and physics at Mt. Morris High School in Mt. Morris, IL.

**Gary Rechnitz**, Ph.D. '61 (Chemistry with Laitinen) received the 1992 Award in Electrochemistry from the ACS Division of Analytical Chemistry. The award is sponsored by EG&G Princeton Applied Research. Dr. Rechnitz is professor of chemistry and head of the Hawaii Biosensor Laboratory at the University of Hawaii.

**Robert E. Sievers**, Ph.D. '60 (Chemistry with Bailar) received the Keene P. Dimick Award at the 1992 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy. Dr. Sievers is a professor at the University of Colorado. Since 1980, he has been director of the Cooperative Institute for Research in Environmental Sciences.

**Roger L. Tanner**, Ph.D. '69 (Chemistry with Juvet) is a research professor at the Desert Research Institute in Reno, NV. He is adjunct professor at the University of Nevada at Reno, teaching atmospheric chemistry. He attended the IUPAC Assembly in Hamburg, Germany, in August, 1991 as titular member of the Commission on Environmental Analytical Chemistry.

**Stephen A. Young**, B.S. '63 (Chemistry) is vice president of Wedbush Morgan Securities in Portland, OR.



'70

**Ronald L. Amey**, Ph.D. '79 (Chemistry with Martin) received a DuPont Corporate Marketing Excellence Award. He is a senior research chemist in the corporate business develop-

ment group and received the award in recognition of his technical and marketing contributions to DuPont's expansion into the wet-strength paper resin business.

**John L. Anderson**, Ph.D. '71 (Chemistry with Quinn) has been elected to the National Academy of Engineering. He is professor and head of the department of chemical engineering at Carnegie Mellon University.

**Anne L. Cahill**, B.S. '70 (Chemistry) is a research associate at the University of Chicago.

**Robert Clark**, B.S. '76 (Chemistry) has been appointed laboratory director at Geotest, a division of Gerservices in Long Beach, CA. He holds a doctorate in environmental science in civil engineering from the U. of I.

**John B. Covington**, Ph.D. '78 (Chemistry with Beak) was promoted to the position of director of research and product development by J. T. Baker, Inc., a manufacturer of specialty chemicals in Phillipsburg, NJ.

**Steve Elledge**, B.S. '78 (Chemistry) is a research scientist in gene therapy at Baylor University Medical School in Houston, TX. He received a Ph.D. from MIT in organic chemistry and took a postdoc at Stanford University in biochemistry.

**Timothy R. Felthouse**, Ph.D. '78 (Chemistry with Hendrickson) was appointed a Monsanto Fellow. He was cited for his accomplishments in the development of improved catalysts for the manufacture of sulfuric acid and maleic anhydride.

**Barry D. Gehm**, B.S. '76 (Biochemistry) is a research associate at the University of Chicago Ben May Institute.

**George D. Gromke**, B.S. '79 (Biochemistry) completed an orthopaedic surgery residency at Grandview Hospital in Dayton, OH. in 1991 and is currently completing a joint reconstruction fellowship at Tampa General Hospital in Tampa, FL.

**Scott Halvorson**, B.S. '74 (Chemistry) is instructing students in the internal residency program at St. Luke's Hospital in St. Louis, MO. He is also an internist in private practice in Highland, MO.

**Thomas Keenan**, Ph.D. '71 (Chemistry with Leonard) has been named director of research and development at Kind & Knox, Division of Knox Gelatine, Inc. in Sioux City, IA.

**Ronald S. Lenox**, Ph.D. '73 (Chemistry with Katzenellenbogen) was cited for his work as a volunteer tutor at the Boys and Girls Club.

He is a senior research scientist at Armstrong World Industries and a former professor of chemistry at Wabash College.

**Glenn Lewis**, B.S. '78 (Chemistry) is the R&D computer systems administrator for Helene Curtis, Inc. in Chicago, IL.

**James R. MacMurdo**, B.S. '75 (Chemistry) was elected executive secretary of the American Society for Quality Control. He is quality assurance manager for the Connector Division of Ideal Industries, Inc. in Sycamore, IL.

**Thomas J. Paulus**, Ph.D. '79 (Biochemistry with Switzer) has been promoted to section manager, Fermentation Strain Development at Abbott Laboratories in North Chicago, IL.

**James E. Roberts**, B.S. '77 (Chemistry) has been promoted to associate professor of physical chemistry at Lehigh University in Bethlehem, PA.

**Ken S. Rosenthal**, Ph.D. '77 (Biochemistry with Storm) is professor of microbiology and immunology at the North East Ohio University College of Medicine in Rootstown, OH.

**James A. Rugg**, M.S. '78 (Biochemistry) is section manager of Stratus Technology Transfer for Baxter Diagnostics, Inc. in Miami, FL.

**John A. Secrist, III**, Ph.D. '72 (Chemistry with Leonard), executive vice president of the Southern Research Institute, has been appointed to the president's advisory council of Birmingham-Southern College in Birmingham, AL.

**Sally Schuster Smith**, B.S. '74 (Biochemistry) is president of Systems Integration Association, Inc. of Brookfield, WI., an industrial hygiene and environmental health consulting firm.

**Christian P. Struven**, B.S. '79 (Chemistry) has been named medical director of the Memorial Hospital Corporate Health Program in Crystal Lake, IL. Dr. Struven is a board certified internist.

**Mary A. Walter**, B.S. '73 (Chemistry) has been appointed vice president, technology development, at the Texas Research and Technology Foundation of San Antonio, TX. Dr. Walters earned her Ph.D. in microbiology and immunology from Oregon Health Sciences University in Portland in 1984 and did postdoctoral research at the Merck Institute for Therapeutic Research in Rahway, NJ from 1984-85.

**Sandra Byster Weiss**, M.S. '77 (Chemistry) is an attorney with Jones, Day, Reavis and Pogue in Chicago, IL, specializing in patent and trademark prosecution and litigation. She received her J.D. degree from DePaul University in 1984.

**Lynn C. Yeoman**, Ph.D. '70 (Biochemistry with Hager) is professor at the Baylor College of Medicine in Houston, TX.

## Thank You Alumni and Friends

**T**hank you for sending us your news and your checks. This belated issue of the newsletter is the first annual version, reduced from the semiannual newsletter because of budget cuts. We will try to keep you informed, as ever, and will make your news our first priority.

Even though you will not receive the usual newsletter in November, please remember us in your "giving" list. Your checks help us to offer a program that gives us great pride.

**'80 Christopher D. Baron**, B.S. '88 (Chemistry) is a teaching assistant at Purdue University in West Lafayette, IN.

**Robert Bedgood**, B.S. '85 (Biochemistry) is a Ph.D. candidate at the University of Southern California.

**Douglas A. Burg**, Ph.D. '88 (Chemistry with Beak) is a senior research chemist with LONZA, Inc.

**Les Butler**, Ph.D. '81 (Chemistry with Brown) is an associate professor at Louisiana State University in Baton Rouge, LA.

**Tsu-Chung Chang**, Ph.D. '89 (Biochemistry with Shapiro) is doctor and associate professor at the National Defense Medical Center in Taipei, Taiwan.

**Andrew G. Chenelle**, M.S. '87 (Biochemistry) is a resident in the Department of Neurosurgery at the University of Virginia. He graduated with honors in 1991 from the University of Chicago Pritzker School of Medicine.

**Linda Chi**, B.S. '86 (Biochemistry) is a research scientist at Abbott Laboratories. She is planning to pursue full time graduate study in the fall of 1992 at the MRC, University of Cambridge, England, specializing in the field of human retrovirology.

**Philip E. Duncan**, B.S. '86 (Chemistry) is laboratory director for Envirotech Operating Services in Naples, FL.

**Randy Erickson**, B.S. '81 (Chemistry) is working for DowElanco in Indianapolis, IN. He received his Ph.D. in '87 from Oregon State University and did postdoctoral research at Rensselaer Polytechnic Institute in Troy, NY.

**Richard F. Geiger, Jr.**, Ph.D. '83 (Chemistry with Nieman) is group leader for new products and applications development for the Cabot Corporation in Tuscola, IL.

**Aniel A. Gulino**, Ph.D. '83 (Chemical Engineering with Drickamer) is assistant professor of chemical engineering at Ohio University in Athens, OH.

**Muin Haddad**, Ph.D. '80 (Chemistry with Hendrickson) took first place at the Continent-Wide, Instant Matchpoint Game held under the auspices of the American Contract Bridge League. He is employed at the Amoco Chemical Company.

**Billy R. Hardas**, B.S. '83 (Chemistry) is a research chemist with Dow Chemical in Midland, MI.

**Kenneth W. Harlow**, Ph.D. '89 (Biochemistry with Switzer) is an assistant professor of protein chemistry at the Institute of Biochemical Genetics at the University of Copenhagen in Denmark.

**James E. Hensley, Jr.**, B.S. '84 (Chemical Engineering) is production manager of the Ferro Corporation in Hammond, IN.

**Barry G. Hicks**, B.S. '84 (Chemistry) is a senior lab supervisor with Baxter Health Care.

**Kevin E. Howard**, Ph.D. '88 (Chemistry with Rauchfuss) is a senior research chemist at the Dow Chemical Company.

**Daran C. Janacek**, B.S. '87 (Chemical Engineering) is a process development engineer with Dry Branch Kaolin Co. in Dry Branch, GA.

**Roy Kimura**, B.S. '89 (Chemical Engineering) has completed his M.S. in chemical engineering at the University of Houston and is working towards a Ph.D. at Northwestern University.

**Thomas Lessaris**, B.S. '86 (Chemistry) received his M.D. degree from Southern Illinois University Medical School in May, 1991.

**Mark Lewis**, B.S. '81 (Biochemistry) has opened a private practice in St. Charles, IL. He received his M.D. degree from the University of Illinois Medical School in Chicago, IL.

**Tsuei-Yun Liang**, Ph.D. '87 (Chemistry with Schuster) is a research chemist with Amoco Chemical Company in Naperville, IL.

**Andrew Harold Limper**, B.S. '80 (Chemistry) has been appointed Assistant Professor of Medicine and Senior Associate Consultant in the Thoracic Disease Division by the Mayo Clinic.

**Louis R. Lukancic** B.S. '83 (Chemistry) is a specialist in internal medicine, practicing at St. Francis Medical Center in Peoria, IL.

**Shelly McNair**, B.S. '87 (Biochemistry) received an M.D. degree from the Baylor College of Medicine in Houston, TX.

**Scott L. Menzel**, B.S. '84 (Chemical Engineering) was promoted to process engineering manager for Protein Technologies International, a wholly owned subsidiary of Ralston Purina Company.

**Charles Meyer**, B.S. '84 (Chemical Engineering) is a process development engineer with Drakenfelt Colors in Washington, PA.



**Sean O'Brien**, B.S. '84 (Chemistry) informed us that, as a second year graduate student at Rice University, he was a member of the team that discovered the Buckminsterfullerene in 1985. He writes, "I am proud that the Illinois chemistry department had a major role in this discovery."

**David W. Piotrowski**, B.S. '86 (Chemistry) is working for DuPont in Newark, DE. He completed a Ph.D. at the University of Wisconsin at Madison in synthetic organic chemistry.

**Liz Gale Potts**, B.S. '80 (Chemical Engineering) is director of program development for ABS Quality Evaluations, Inc. in Houston, TX.

**Mark A. Pytosh**, B.S. '86 (Chemistry) is an associate with Kidder, Peabody and Co. in New York.

**Stanton Rak**, M.S. '86 (Chemistry) is a materials specialist with Motorola, Inc. in Northbrook, IL. He received a Ph.D. in inorganic chemistry from the University of Minnesota in 1991.

**Scott L. Rakestraw**, B.S. '84 (Chemical Engineering) is a project leader with DuPont in Wilmington, DE. He completed his Ph.D. in chemical engineering at MIT in 1989.

**A. M. (Lon) Rollinson**, Ph.D. '80 (Chemical Engineering with Drickamer) has been promoted to PRINTKOTE development supervisor by Westvaco in Covington, VA.

**Samuel J. Rose III**, Ph.D. '81 (Biochemistry with Uhlenbeck) is research manager of the SYVA Company in Palo Alto, CA. He was an American Cancer Society and Muscular Dystrophy Association postdoctoral fellow at Cal Tech from 1981-86.

**Kurt Rothenburger**, Ph.D. '88 (Chemistry with Belford) is a research chemist with the U.S. Department of Energy in Pittsburgh, PA.

**Teri Shull**, B.S. '86 (Chemistry) has been appointed Illinois regulatory affairs manager for Chemical Waste Management Inc. in Geneva, IL.

**Karen Ann Smith**, Ph.D. '84 (Chemistry with Oldfield) is an NMR spectroscopist at Iowa State University in Ames, IA.

**Bradley W. Soren**, B.S. '82 (Chemical Engineering) is a scientific programmer analyst with UOP in Des Plaines, IL.

**Catherine J. Stelenfeld**, B.S. '86 (Chemistry) is a polymer research chemist with Chemdal Corporation in Palatine, IL.

**Bryan Stirrat**, B.S. '89 (Chemical Engineering) is a production support engineer with Abbott Laboratories in Abbot Park, IL.

**Andrea Thieme**, B.S. '85 (Chemistry) is a scientist with Parke-Davis in Ann Arbor, MI. She completed an M.S. degree in organic chemistry/biophysical chemistry from the University of California at Berkeley in 1991.

**Steve Tracy**, B.S. '85 (Chemical Engineering) is an engineering/manufacturing training specialist with EDS in Southfield, MI.

**Richard K. Trubey**, Ph.D. '86 (Chemistry with Nieman) is a section research chemist with DuPont Agricultural Products in Wilmington, DE. He is developing new analytical methods for residues of crop protection chemicals in soil, water, plants, and animals.

**Terry Trykall** B.S. '86 (Chemistry) is first officer with Baxter Healthcare in Waukegan, IL.

**Phillip W. Twaddle**, B.S. '82 (Chemical Engineering) is a process supervisor with DuPont in Belle, WV.

**Ben Unger**, M.S. '89 (Biochemistry) has been promoted to associate market analyst in hospital product marketing by Merck Sharp & Dohme.

**Carla M. Verschoor**, B.S. '82 (Chemistry) received a Ph.D. in chemistry from the University of Wisconsin in 1986.

**Debra Wroblewski**, Ph.D. '83 (Chemistry with Rauchfuss) is a member of a group at Los Alamos National Laboratory that has developed an electrically conductive coating that protects steel from corroding even in severe environments.

**Lisa Yeh**, B.S. '82 (Chemistry) is a senior chemist with Exxon Research and Engineering in Clinton, NJ. She completed a Ph.D. in physical chemistry at the University of California/Berkeley in 1988 and took a postdoc at the IBM Almaden Research Center in San Jose.

In her current position at Exxon she is doing research in combustion chemistry.

**Sandra Zarnow**, B.S. '81 (Chemistry) is a dentist in private practice in Skokie, IL. She received her DDS in '85 from the U. of I. Medical Center.

**Harry Zingher**, B.S. '80 (Chemical Engineering) is with Illinois, Iowa OSU in Rushville, IL, carrying out research on artificial heart pumps.

**'90 Kristal Ball**, B.S. '90 (Chemistry) is finishing her M.S. degree at Fresno State, CA.

**David R. Brown**, Ph.D. '90 (Chemistry with Belford) is a postdoctoral student at the University of California in San Diego, CA.

**Erik Carlson**, B.S. '91 (Chemistry) is on missionary assignment in Lac Mbulu, Zaire. He and his wife will be working for Every Child Ministries, Inc.

**Matt Estes**, B.S. '90 (Chemistry) is a graduate student at the Institute of Paper Science Technology in Atlanta, GA. He expects to receive his M.S. degree in March, 1992 and to begin studies for a Ph.D.

**Warren Kaplan**, Ph.D. '90 (Chemistry with Suslick) is a senior research chemist with Dow Chemical Co. in Freeport, TX.

**Gordon Kwan**, B.S. '91 (Chemistry) is an environmental and safety technician with Environmental and Safety Services, Inc. in Kansas City, MO.

**Brian C. Lunn**, B.S. '91 (Biochemistry) is a technical sales representative with Procter and Gamble in Cincinnati, OH.

**Robert Marshman**, Ph.D. '90 (Chemistry with P. Shapley) is now attending Colorado State University on a postdoctoral fellowship.

**Angie Reno**, B.S. '91 (Chemistry) is a chemistry teacher for the Peace Corps in Zimbabwe.

Distinguished Alumnus  
of the School of Chemical Sciences



William H. Lycan, Ph.D. '29

In appreciation for support  
and longstanding friendship  
University of Illinois, 1992



This plaque, a duplicate of the one given to distinguished alumnus and benefactor, William H. Lycan, Ph.D. '29, has been placed on permanent display in the chemistry library.

# The Engineering Open House

*Continued from page 8*

The annual Engineering Open House is one of the high points of the year. With minimal faculty input, students mount scientific displays that attract literally thousands of visitors to the U. of I. for the spring event. Every year the chemical engineers win numerous awards and this year was no exception.

The theme for the 1992 Open House was "Unleashing Tomorrow's Potential" and the AIChE group gave a variety of prize winning presentations. The main exhibit was a computer controlled insulin pump, shown at right, co-designed with the Bioengineering Department. It's function was to monitor blood sugar levels of diabetic patients and maintain acceptable levels without patient input.

The AIChE student group won first place for an exhibit on "Slow Release Fertilizers" which was selected as the best representation of this year's theme. They won second place in the undergraduate research category with their exhibit on protein crystals shown on page 8. Their exhibit on slug flow, shown below, won fifth place in the graduate research division.



▲ George Niezyniecki was one of several students on hand to explain the insulin pump to a constant stream of visitors

▲ Brian Frederiksen and Eric Sweeney demonstrate the operation of the slug flow apparatus.

SCS Alumni Newsletter  
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