ALUMNI NEWS
School of Chemical Sciences
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Ellen Handler has Retired from Editing the Newsletter

by Stephen Sligar, Director, School of Chemical Sciences

The passing of an era — a dynasty — an empire. All describe the global feelings associated with this, the last newsletter under the leadership and creativity of Ellen Handler. Ellen took over the School of Chemical Sciences newsletter in 1986 and, as described [below], has shepherded this document from a mechanism of notification to the backbone of our communication with alumni, friends, and colleagues.

Ellen Handler

Ellen officially "retired" last year, but we were able to convince her to manage two additional newsletters. Frankly, I had

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The Move

Over the last three years we have watched the new Chemical and Life Sciences Laboratory (CLSL) take shape. In September we took possession. Since then, a stream of 18 research groups has moved into their new quarters and the new laboratories and offices are already as busy as before.

The pedestrain walk, formerly California Street. The new Chemistry Building on the right is connected via overhead walkway with the Life Science Building on the left.

As Paul Bohn, Head of Chemistry, points out, the new laboratory has important implications for the department and its future. Chemistry has been carried out in Noyes Lab for the last 95 years. During that lengthy period, the field has changed dramatically and has required a radically new infrastructure. With the new laboratory, we will have, according to Bohn, "the support structure that meets the demands of 21st century chemistry." He anticipates that the new facilities will have a dramatic, uplifting effect on the morale of faculty, staff, graduate students, and others carrying out the research effort of the department.

The move will also bring beneficial results to the historic Noyes Lab which has long required a major renovation. We anticipate that additional space will become available for instructional programs, service facilities, including the chemistry library, and administrative services. Remodeling in Noyes will be a long term project but should prove equally positive for those programs remaining in the landmark building and will, in turn, benefit the chemistry program enormously.

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The Move

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The Maestro of the Move

Although the move was a team effort, the team could not have functioned effectively without a captain. Dr. Howard Guenther, the new Associate Director of the School of Chemical Sciences, was the planner and coordinator who led a winning team to success.

Fortunately, Guenther has had considerable experience with moving, siting and installing sophisticated equipment, which was an ever present complication of the chemistry move. From 1983-1988, Guenther worked with Diasonics MRI Division where he coordinated university and clinical research site programs, including specialized imaging sequence design and general new product installations along with customer support. As the person in charge of designing and managing the important beta sites for the company, Guenther became proficient at the skills needed to carry out the complex move to our new laboratory.

Guenther also brought to the project extensive knowledge of the University, through his previous appointments at the U. of I. He has been associated with the

Howard Guenther, Maestro

Biomedical Resonance Laboratory under the direction of Professor Paul Lauterbur. As a Senior Research Specialist in the UIUC College of Medicine, Guenther's responsibilities included various aspects of project and facilities' management, teaching, and instrument operation. He has carried out chemical research, mainly in the synthesis and analysis of composite hydrogels aimed at a variety of novel applications, including MRI contrast agents.

Guenther brings to his position a Ph.D. in chemistry, which gives him an appreciation of the vulnerability of delicate instrumentation and an understanding of the special needs of researchers in different fields of chemistry. In addition, he has an MBA degree and considerable experience with business and management, which has been helpful to maintain the patience of the staff, as the remaining changes in the facilities were finalized and the labs were readied for occupancy.

As Associate Director of the School, Guenther's responsibilities extend far beyond the completion and move to the new building. He is also the chief operating officer of the School with primary duties in strategic planning and implementation of capital programs and infrastructure expansion. He is the one to effect optimization of resources and revenue streams, to monitor space assignments and usage, and to manage issues related to safety, intellectual property and conflicts of interest, to develop productive corporate relations and coordinated development activities. These manifold responsibilities will assume center stage as the move nears completion and Guenther is already looking forward to the many challenges that are approaching at a rapid pace.

Now that the end is in sight, Guenther is pleased at the smoothness of the move, without pronounced disasters. He gives considerable credit not only to the facilities' staff but also to the faculty, who showed understanding and patience despite the interruptions in their research programs. Many lent a hand and helped move items that did not require the experience and equipment of professional movers. As Guenther says, "the success of the move is indisputable. No one has yet requested to move back to their former quarters."

The laser tables start their journey at left, and continue toward their new destination above.

Ellen Handler

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hoped that we could continue this contractual relationship ad infinitum, but alas, we seem to have reached an end point. Although Ellen held the title of Director of Development and Alumni Affairs, she never felt that the SCS Newsletter was simply a development tool. Rather, she used it as a natural extension of her warm and outgoing nature to effect a level of stewardship and connectivity that became important to us all.

How was Ellen able to generate such superb news articles, describing the state of the School and its research and instructional enterprise? Quite simply by talking and listening to faculty and alumni, seeing the connectivities between individual discoveries and the mission and path of Illinois chemical sciences, and keeping in touch with the creative individuals and loyal alumni who supplied material for "the whole story."

Ellen's past career and educational experience helped shape her unique abilities and personality. Graduating from Vassar College with a degree in Sociology and from the University of Chicago with a masters in social service administration, Ellen learned the critical attributes of interpersonal communication and contact.

Following her Ph.D. in Sociology from the Illinois Urbana-Champaign campus, she held a variety of positions. These included teaching at the U. of I. School of Social Work and coordinating the federally financed Medical Care Evaluation Program where she was responsible for evaluation studies in hospital health care and delivery.

What will she do with her "free" time? Those who know her and her husband Paul realize that we will not need to worry. A trip to Africa is planned for the coming summer and other adventures will follow that will push the envelope of discovery and learning. Ellen has also undertaken a variety of time consuming volunteer projects locally and nationally.

And to think that I thought we might coerce her to continue writing the SCS newsletter (. . . well, maybe only once per year . . . hummm). Ellen, you will indeed be missed, and please tell your loyal fans that it may take a while to approach your excellent leadership and creativity which we all enjoyed. Happy hunting!

New Cell/Media Center promotes Biological Chemistry Research

This new service facility was established last February in response to the need of Biochemistry faculty for a centralized laboratory to promote the chemical study of biological molecules. Similar facilities at other institutions such as Stanford and MIT have been successful. The School of Chemical Sciences Cell/Media facility is located in 491 Roger Adams Laboratory. Its purpose is to serve laboratories whose research requires the growth of bacteria, yeast, Drosophila, and animal cells.

In the past, although many individual laboratories required such materials, there was no central facility to meet the need. In order to maintain such cells adequately, culture media and plates must be prepared on a routine basis. Currently, each laboratory maintains its own systems for the preparation and sterilization of such materials. Some of these materials have relatively short shelf lives and tend to be wasted due to low volume usage. The net effect of the former system has been a costly duplication of equipment, in addition to wasteful and repetitive small scale production.

The Cell/Media facility will offer large scale production to provide fresh materials for a large pool of users. Customers of the laboratory will enjoy savings in cost and in valuable investigator time. Current researchers will be better equipped to pursue new research on biological molecules and we anticipate that the facility will also serve as an incentive for recruiting new faculty. The laboratory, managed by Dr. Sandra Mattick, a recent biochemistry graduate, will also serve users outside of the School of Chemical Sciences at the University of Illinois.

Dr. Sandra Mattick in the Cell/Media Lab.

Faculty Research

With the Tools of Organic Synthesis, Moore Advances Materials Chemistry

Jeffrey Moore has made a fast start. Less than six years after joining academia he was given the rank of full professor at the University of Illinois and made Co-Head of the Molecular and Electronic Nanostructure Group in the Beckman Institute.

Moore is one of a handful of pioneers who have moved molecular based materials research beyond the study of traditional polymers. His scientific focus is on developing methods to create pure compounds that can be completely characterized and better understood. "Although there is no questioning the importance of synthetic polymer materials, mixtures are fundamentally different than pure substances," says Moore. The control achieved with pure molecular substances has allowed his group to develop materials with novel characteristics.

Historical Context

As Moore points out, the history of macromolecular chemistry cannot easily be summarized but a couple of highlights may provide context. In 1907 the great chemist, Emil Fischer, succeeded in preparing a polypeptide chain of 18 amino acid residues and dedicated himself to the build-up of discrete giant molecules to clarify the limits of molecular size. In 1927, when Staudinger demonstrated the existence of high molecular weight compounds, the practical and industrial significance of this class of synthetic materials became apparent.

One of the great industrial chemists, Wallace Carothers, Ph.D. Illinois 1921, wrote an article in 1931 on "Polymerization" in *Chemical Reviews* in which he said, "The step-by-step synthesis of long molecular chains containing a repeating unit is illustrated by Fischer's synthesis of polypeptides. Reactions of polymerization, however, lead to the formation of polymeric chains in a single operation. . . . It is true that synthetic linear high polymers are invariably mixtures whose molecules are chains of slightly differing lengths. . . . Nevertheless, it must be admitted that a molecule does not lose any of its definiteness as an entity [because] it cannot be completely separated from other similar but slightly different molecules."

Moore agrees with Carothers' last statement for characterizing large molecules like commercial polymers. However, he believes that for molecules with limited conformational freedom — the shape persistent molecules — the path suggested by Fischer may be more interesting, especially in the context of supramolecular chemistry.

Building Homogenious Macromolecules

One of Moore's achievements has been to employ synthetic organic techniques to build large, well defined macromolecules, that approach the size of proteins. He has achieved discrete, high molecular weight macromolecules that are large, complex, and unique.

Although chemists in prior years have asserted that they had achieved homogeneous macromolecular substances, they were unable to prove their claims, and subsequent analysis has often shown the claims to be in error. The advent of MALDI mass spectroscopy in the late '80s and '90s, which could be used to accurately characterize macromolecules, proved that Moore's materials were indeed uniform up to 40 kDa. See Figure 1.

Moore has worked with different molecular structures including hyperbranched polymers commonly known as dendrimers. These structures can mimic an antenna or light harvesting structure. The dendrimeric structures can collect photons and transfer the energy to a central point, creating the equivalent of a molecular antenna. Moore has also created liquid crystalline materials and linear chains that can coil into helices. These structures were inspired by his fascination with biopolymers.

Moore is putting these and other compounds to use as building blocks that self assemble into structures with specific network topologies. These building blocks consist of linked sequences of chemical subunits called phenylacetylenes, assembled through various repetitive strategies. This approach permits the rational design and synthesis of homogeneous substances, with potentially interesting properties.

The objective of supramolecular chemists, like Moore, is to synthesize the building blocks, or "modular units" so that

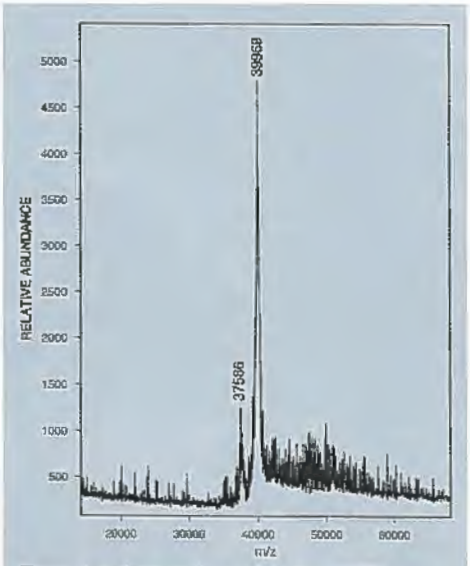


Figure 1. A single major peak in the MALDI mass spectrum indicates that the substance is a pure macromolecular compound with a molecular mass of 40 kDa.

Figure 2. Single crystal X-ray diffraction reveals that phenylacetylene macrocycles pack into honeycomb-like porous solids.

Jeffrey Moore

their physical and chemical properties dictate a "programmed assembly" protocol. Each unit's characteristic shape and interaction potentials — electrostatic, van der Waals, and hydrogen-bonding — are intended to guide their organization into larger structures with the desired spacing and geometry.

Potential Applications

By achieving a high degree of control over the organization of molecular solids, Moore has devised porous materials whose scaffolding dictates the size of internal holes and channels. These materials are structurally reminiscent of zeolites with sieving ability to govern what substances can enter and exit their holes. See Figure 2. The materials can be tailored with channels of different size and shapes which determines their interactions with other materials and could be important for separation and/or transport-dependent phenomena.

A very important problem which supramolecular polymer chemistry can address is the creation of materials which spontaneously order into low symmetry phases. This structure gives a material special properties that have important potential for the field of optoelectronics with significant implications for the telecommunications industry. As Moore says, "Wouldn't it be great to have a material that could be cast or molded into a transparent film and which spontaneously acquired properties such as piezoelectricity, or a nonlinear optical activity such as the photorefractive effect? We are working on the concept of triply segmented assemblies to achieve this goal." See Figure 3.

The Personal Rewards of a Job Well Done

Despite the hectic pace of his work Moore really enjoys what he does. As he says, "I consider it a privilege to have this job and I wouldn't have any other. It is a pleasure to work with students who are being trained as professional chemists and I enjoy teaching." He also emphasizes, "The best part is to work on problems of my choice. Choosing a research direction is one of the most important things a researcher has to do. I have been fortunate with the opportunities my choices have presented and it's great to be here and to be able to carry out my plans."

His colleagues within the department and the scientific community have the utmost respect for Moore. The University designated him a University Scholar in 1996, the highest honor given to a research scientist. His most recent awards from the scientific community was an Arthur C. Cope Scholar Award in 1996 and designation as a Camille Dreyfus Teacher-Scholar for 1994-99.

Professor Paul Bohn, head of the Chemistry Department, describes Moore as "an emerging leader of a new breed of interdisciplinary scientists who will change the way we think about chemistry by bridging the gap from molecules to nanostructures." He adds that Moore's "vision and interests in developing a graduate program in Materials Chemistry is already an important factor in shaping the future of our Department."

Professor Scott Denmark, a colleague, remarks on Moore's ability to "combine in a synergistic fashion the most powerful elements of two fields — the scope and versatility of synthetic organic chemistry with the concepts and goals of materials science — that enable him to link molecular scale to macroscopic function in a unique way." He adds that Moore has already had "a significant impact on the field of macromolecular synthesis and has created a uniquely identifiable subfield that promises to forge new frontiers for the designed synthesis of and applications of solid state materials."

We are proud that Jeffrey Moore is not only a distinguished faculty member in the Chemistry Department of the University of Illinois but also an alumnus. He received his BS in Chemistry in 1984 and his Ph.D. in Material Science 1989, both from the U. of I. Thereafter he took a short leave of his favorite institution with a postdoctoral fellowship at Cal Tech followed by three years on the faculty of the University of Michigan. Paul Bohn considers Moore's return most fortunate for the U. of I. Chemistry Department.

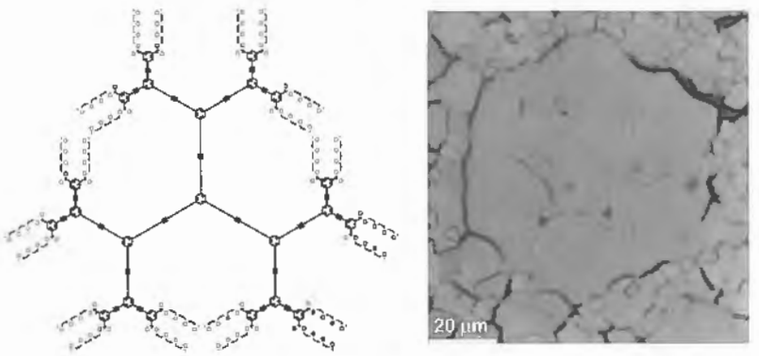
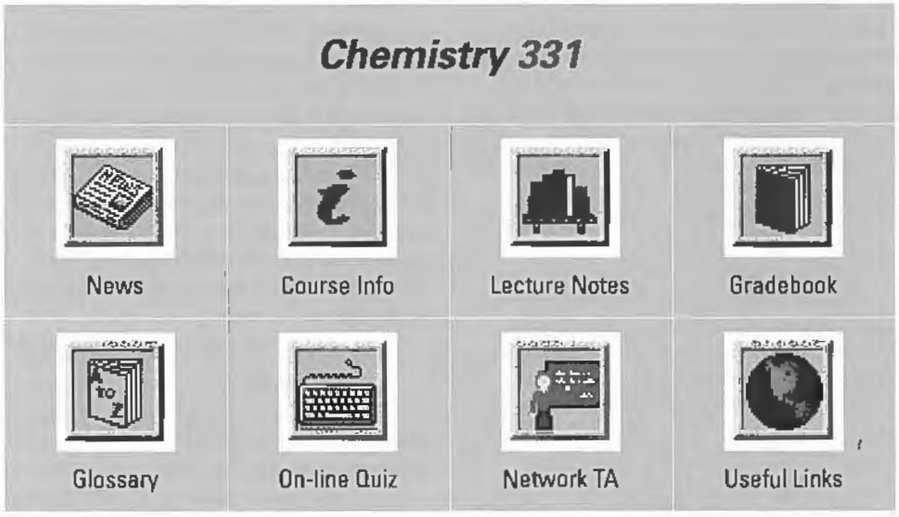


Figure 3. A striking connection exists between the molecular geometry and the macroscopically ordered patterns found in a series of stiff, phenylacetylene dendritic molecules. These compounds with moledular weights up to 6.7 kDa, organize into hexagonal columnar phases which acquire snowflake-like morphologies.

Organic Synthesis Hits the Web

Those of you who remember Organic Chemistry 331 in a traditional lecture/quiz format would be amazed to revisit the "W" section of the course today. Professor Patricia Shapley has gradually redesigned the course so that the material is presented exclusively on the Internet and is available to the student day or night, seven days a week, at any site, on or off campus, wherever the student is located and whenever his/her schedule permits.

Readers with access to the Internet may wish to follow this discussion by dialing into the web-site at http://random.physics.uiuc.edu/cyberprof/chemistry/331/



A glance at the main branches of the course, represented by icons on the introductory page, shows why the traditional lectures and quizzes are no longer necessary. One of the icons takes the student to the 40 lectures with many graphics, embedded examples and problems and links to additional information for either review of earlier material or for supplementary, related material. Working out the problems in the lecture notes is not required but strongly advised. Students are provided answers and hints which help them to work through the problems and an option to contact the NetworkTA if further help is necessary.

Two icons bring the student to quizzes. One is a daily on-line quiz based on a specific lecture. It is computer graded and the results are quickly posted in the gradebook where a student can see his or her own scores. The other is a weekly quiz that a student receives by e-mail and has to complete in a set time frame. All quizzes and exams exist in multiple versions and are randomized to prevent collusion.

The NetworkTA is expected to answer student questions during assigned time slots. The person asking the question and the respondent are encouraged to embed graphics in their correspondence, which aids the learning process of television addicted young people. One advantage of the net-based TA program is that the questions and answers remain on the system and can be reviewed, and, if necessary, corrected by the instructor. Three times a week Professor Shapley conducts an on-line conference to answer questions and explain difficult problems by working out examples on a chalk board that is visible to conference participants. In addition, each student is assigned to study groups where they benefit from peer input.

The anonymity of this teaching methodology is countered somewhat by student input through course surveys where students respond to specific questions or comment freely. This input is very valuable for the ongoing evolution of the course. Professor Shapley has experimented with many formats and is very open to suggestions for change. She finds that the students respond very favorably to the new course format. Enrollment is up from approximately 200 to more than 300.

Patricia Shapley

The course attracts not only undergraduate chemistry students but also intermediate students in biological fields or pre-professional programs. Her goal is to teach a diverse group of students enough about chemistry to make informed choices on science policy as citizens and to enable them to use the methods of scientific inquiry in other fields. Some of her students are not enrolled at the U of I, and she hopes that the course will eventually become a resource for a variety of interested citizens including technicians in industry who may have taken a two-year program in a community college and need more advanced courses to earn a bachelor's degree.

Meanwhile, Professor Shapley is introducing other members of the chemistry department to teaching techniques that she has developed. She expects that the asynchronous learning environment of her organic chemistry course will become a resource for other faculty who wish to establish a more active learning approach in other fields.

Blueprint for the Future Graduate Program

The heart of our Ph.D. program is the research thesis which establishes an individual as an independent scientist. Thesis research is our central mode of graduate instruction and our principal mission. The first year of the Ph.D. program provides the basis for research training. One factor that has given urgency to this examination of our program is that a growing fraction of modern chemical science research requires crossing traditional area boundaries, with attendant modification of our traditional program.

An Ad Hoc Graduate Program Review Committee was established about a year ago at the request of Professor Paul Bohn, Head of the Chemistry Department, to wrestle with changes which will establish the best Chemistry Graduate Program for our future. Professor Peter Beak, its chairman, emphasized the outstanding work of the entire committee, with special thanks to its student members, the patience of the committee as the report went through at least six revisions, and the thoughtful input from alumni, recruiters, and Chemistry faculty.

The process started with a survey of alumni who had received Chemistry Ph.D.s in the recent past and representatives of industry who recruit our graduates. The common elements in the alumni responses provided a springboard: appreciation for an excellent research experience, a desire for greater breadth in the educational program, and dissatisfaction with one or another aspect of the CUME exams. The first demonstrated clearly that thesis research meets universal approval.

To provide additional opportunities for breadth of coursework, the committee recommends greater flexibility for faculty to establish interdisciplinary programs and to cross traditional boundary lines in their program offerings. Students will be required to distribute their courses approximately equally between their major specialty and outside their specialty, or in related physical, mathematical, or biological science areas.

In its final report, the committee recommended that CUME exams will be started later and reduced in time. Topics for an approaching exam will be announced in advance. The examinations will focus on problems of a fundamental area, taken "from an expanded core of knowledge in which students in a chemical subspecialty should have some experience."

To assist students in the selection of a research advisor, each area within the department will establish a schedule of steps to inform incoming students concerning research opportunities "in a timely and deliberate fashion during their first semester of graduate study." Students will be required to meet with at least nine faculty throughout the department, including all assistant professors in their area of choice.

The committee recommended that all areas require the student to submit an acceptable research proposal prior to the end of their eighth semester. This proposal is not related to the student's thesis and is an important step in his or her professional development. The research proposal should demonstrate that the student is able to define independently a subject that is worth further investigation. The ability to conceptualize and write a proposal should provide a good foundation for independent research, whether writing grant proposals in academia or selecting subjects appropriate for investment of resources in an industrial setting.

Finally, the committee suggested several approaches to improving the mentoring of first-year students. Each area, through the graduate advisor or a designee will provide regularly scheduled, at least monthly meetings with first year students until they have joined a research group. Recognizing that the first year and especially the first semester, may be the most difficult experience of the entire graduate program, the committee recommends careful advising and monitoring of students' progress to alleviate the high level of stress that can be associated with entrance into the graduate program.

The overall aim of the committee was to provide greater uniformity across divisions, to encourage greater breadth of knowledge, and to provide greater flexibility. Some of these changes are already in process. Many of the younger faculty describe their research interests as crossing disciplinary boundaries, and the recent programs in molecular science and materials chemistry show that both faculty and students are interested in the flexible structure and wider range of choices associated with interdisciplinary programs.

The construction of the report emphasized building consensus around the recommendations as a foundation for action. The faculty are generally agreed that the changes outlined in the report will be valuable for our program and should be implemented. The next step is to work with the graduate students and to bring them into the consensus building process so that they will help us to make the blueprint a reality.

Professor Bohn building consensus with graduate students.

Restructuring Brings Major Biochemistry Course Into Modern Era

Biochem 355/356 is still offered in Noyes Laboratory, but almost everything else about it has undergone significant change. The changes did not happen overnight but were set in motion by a committee that was charged with speeding up the modernization effort "to prepare students for the modern work environment," as summarized by Professor Switzer. Another goal was to attract a more diverse student group, including undergraduate as well as graduate students from biochemistry, microbiology, agriculture, and veterinary medicine.

The most obvious change that strikes a visitor is the physical renovations in the laboratory. The old, pitted wooden benches and floors have been replaced with a light, modern, open classroom that offers an attractive environment for students and faculty. The "before" photos show a laboratory that has not undergone serious renovation since Noyes Laboratory was built in 1904. The new lab is not only more attractive but also a safer environment. There is better light, safer storage of chemicals, and mechanisms for better temperature control. It is also cleaner and less noisy. According to Switzer, the students demonstrate respect for their improved environment. The laboratory is quiet and orderly and suffers a minimum of trash and graffiti.

After — students working in restructured biochem course.

The pleasant environment becomes even more important because the demands of the course have been expanded and students spend a good deal of time in the laboratory. Credit hours for the course have doubled. Students attend three lectures weekly and spend three solid afternoons in laboratory work in addition to a fair amount of time required for preparation.

Although experiments are always evolving, the process of change has been accelerated. The experiments have become more complex. The students work with partners and learn to plan efficient time allocation to conclude the experiments on time. As Switzer points out, "We hope that the experience will give the students good work skills as well as research skills that mimic more closely the modern industrial labs. For instance, the students are expected to keep lab books that resemble the research workbooks that are required in professional settings."

The laboratory introduces students to modern equipment. Experiments are performed on a smaller scale and with far more sensitive, often computer-controlled equipment. Like modern molecular biologists in the work environment, the students learn to work with restriction enzymes and to become familiar with new equipment such as computer-controlled Liquid Scientillation Counters, which measure the amount of radioactivity present in a series of samples, and thermal cyclers which allows large quantities of DNA to be produced using a technique called PCR. The lab also has a spectrophotometer that can analyze 96 samples simultaneously and reads the absorption spectra for high throughput drug discovery on an adjacent computer screen.

Before the renovation.

Informational Sciences

Two other faculty, Professor David Kranz and Liam Garrity, a Visiting Lecturer, have introduced a series of problems in Informational Science. With a grant from the Educational Technology Board at the U. of I. they have purchased computer equipment that can be used to access useful software such as the Biology Workbench Program developed by Professor Shankar Subramaniam at the University of Illinois. With this equipment, students learn how to search for protein structures and DNA sequences, analyze the structures by various algorithms and finally devise experiments that help predict their function.

The students start with a sequence of a protein or gene and search various databases to find similar structures that provide clues to help them predict their function. For example, by studying the sequences of DNA, the students learn to predict the proteins that will be expressed from the DNA and the instructions for control of expression. As Professor Kranz points out, "This is a direct analogue of what researchers in industrial

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Chem Engineering Labs Receive Major Face Lift

At the opening reception, Prof. Charles Zukoski (at right) describes the new facilities to Dr. Larry Faulkner, Provost (center) and Dr. Issam Dairanish, Visiting Scientist (at left).

Students at work in new lab environment.

The project has been in process for many years and was long overdue. Remodeling in Roger Adams Laboratory has been minimal since its construction about fifty years ago but the field of chemical engineering has changed vastly and the requirements for adequate instruction and research today could not have been imagined at the time that the Laboratory was designed.

Those of you who remember the noisy receiving bay with trucks moving in and out and labs on two mezzanines, will hardly recognize the area today. The bay has disappeared and so have the mezzanines. In their place are three large, light, attractive laboratories on two floors. The old truck receiving bay has been converted to a new Unit Operations Lab in the basement with a new wall to brick up the old truck entrance. On the first floor, the former mezzanine has been replaced with two spacious labs, the Process Control Lab and the Senior Projects Lab. The restructuring required new floors for all three labs.

The new labs are not only attractive but also considerably safer for the students. Both fire protection and security measures have been upgraded. Several other changes have benefited not only the Chemical Engineering Department but also other groups in the building. The first floor lecture hall has been returbished, a new telecommunications hub station has been created as well as a new substation to supply the building with much needed power.

The project has been a collaborative effort between the Department of Chemical Engineering, the School of Chemical Sciences, the College of Liberal Arts and Sciences and the University. As one facet of the ChE 2000 campaign, the Department planned to consolidate its undergraduate teaching laboratories and to offer students "a modern, clean and safe environment," as described by Professor Charles Zukoski, Department Head.

We wish to thank our alumni and corporate friends who have helped support this important effort. As you know, the ChE campaign is still in process but has moved far enough towards its goal that the University created a credit line against which the Department could draw to pay for its remodeling costs. We anticipate that further external funds will help us pay off our debt. We also wish to thank Professor Dick Alkire, former head of the Department, and now Vice Chancellor, who was the author of the funding scheme that has made the project possible.

A reception sponsored by the Chemical Engineering Department gave those within and outside the department an opportunity to admire the new instructional space. A pH control experiment was unveiled in the Process Control Lab. Professor Richard Braatz has received a special Dreyfus grant to devise new control experiments. This one addressed a common industrial problem of adjusting the pH level of a liquid flowing through a system of pumps until it reached the desired level. The process is computer controlled and has been miniaturized to facilitate its usefulness as a teaching tool. Professor Braatz promises that his next experiment will be one that has not yet been solved by industry and will encourage our corporate friends to take part in the project.

Each laboratory has been designed for a specific function although the open spaces will create considerable flexibility in determining their use. As Professor Zukoski assured his visitors, these are "pristine labs with a bright future."

Restructuring Biochemistry Course, continued

laboratories do when they are faced with new sequences." This part of the course is a new addition and continues under development. Many of the exercises we hope to develop will depend on our ability to obtain additional computer hardware.

The upgrade of experiments is a continuous process and time consuming because of extensive testing of new material before it is included in the students' curriculum. One of the plans for the near future is to introduce more immunochemical methods that are typically used to evaluate protein expression levels in modern biotechnology laboratories. As Switzer points out, "It is fun to teach this course because it is constantly changing and the experience is always new." He also likes the opportunity for informal contact with the students as he supervises the labs. As he says, "We work the students hard but the students can see that, though we are stern and demanding, our hearts are in the right place."

The bioinformational science section of course developed by Liam Garrity and professor David Kranz, left to right in back row.

Suslick Appointed Lycan Professor

This Professorship, which is supported by the Janet and William Lycan Fund in Chemical Sciences, recognizes Kenneth Suslick whose contributions to synthetic and materials chemistry have had a broad impact. Suslick's international reputation as a scientist is perhaps most strongly associated with the field of sonochemistry. Appointed for a five-year term, Suslick joins the two other Lycan Professors in Biochemistry and Chemical Engineering.

The chemical effects of high intensity ultrasound, sonochemistry, involves the extreme energy regimes and exotic phenomena associated with acoustic cavitation (the formation and implosive collapse of bubbles in an irradiated liquid). Extracting chemically interesting results from the unusual conditions created during bubble collapse in liquids requires extaordinary breadth which Professor Suslick has made a hallmark of his science.

Among his important results are the experimental determinations of the conditions created during acoustic cavitation, the applications of ultrasound to catalysis, mechanistic studies of the effects of ultrasound on liquid-solid reactions, the discovery of the sonochemical synthesis of amorphous nanostructured metals, and the ultrasonic formation of protein microspheres and the development of their biomedical applications.

Suslick is also an outstanding teacher and disseminator of scientific information beyond the academic community. He has written reviews and articles for the nonspecialist in *Science, Scientific American,* and *The New Scientist.* He has been actively involved in the private sector by serving on the Board of Directors of Ney Ultrasonics, Inc., and on the Scientific Advisory Board of VivoRx Pharmaceutics.

Suslick received his B.S. with honors from Cal Tech in 1974 and his Ph.D. from Stanford University in 1978. He was elected a Fellow of the American Association for the Advancement of Science in 1992 and a Fellow of the Acoustical Society of America in 1994. Among his many honors are an NIH Research Career Development Award, a Sloan Foundation Research Fellowship, an ACS Nobel Laureate Signature Award for Graduate Education and the Materials Research Society Medal for Exceptional Recent Achievements in Materials Research.

Kenneth Suslick

Orlean Awarded Petit Professorship

Peter Orlean, Professor of Biochemistry, received a pleasant surprise when his application for promotion and tenure wended its way through the administrative hierarchy. Not only did he receive the coveted promotion but also a 1997-1998 Helen Corley Petit Professorship awarded by the College of Liberal Arts and Sciences.

Peter Orlean

The professorships were established by Helen Petit, who attended the University of Illinois from 1923-1926 and carried away many wonderful memories of outstanding faculty whom she had met during her undergraduate studies. The Helen Corley Petit Professorships are one of the most prestigious distinctions for faculty in LAS. They recognize and support research, scholarship and outstanding teaching and can also be used to help attract new faculty. Orlean received the award on the basis of his extraordinary record, which was established in his review for promotion.

Orlean was taken completely by surprise. As he said, "The professorship means a great deal to me. I am especially honored to be recognized by the college and the campus in addition to my department. However, I could not have achieved this distinction without the contributions of many others. Both my undergraduate and graduate students contributed many valuable ideas and carried out the work with enthusiasm. I also could not have accomplished all I did without the valuable support of the School of Chemical Sciences, their staff and my colleagues."

The major line of research in Orlean's laboratory is the analysis of yeast molecules cells, which are models for human cells as well as for pathogenic fungi and protozoa. His work has a number of important medical applications especially in the search for therapeutic agents to combat fungal infections that afflict AIDS patients, and those receiving immunosuppressives, or suffering from parasitic infections such as sleeping sickness.

Beak Appointed Roger Adams Professor

Peter Beak, Professor of Chemistry, has the distinction of being appointed the Roger Adams Professor of Chemistry.

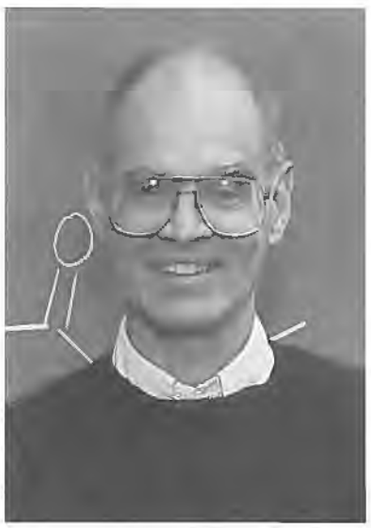
In announcing the appointment, Professor Paul Bohn, Head of the Chemistry Department, indicated that Professor Beak had received the unanimous recommendation of his colleagues along with enthusiastic endorsement by the campus committee and the administrative hierarchy.

And he added, "The Professorship . . . recognizes a scholar whose contributions to our science are especially insightful and forward-looking. Peter Beak's leadership in physical organic chemistry, organic mechanisms, and organolithium chemistry is without parallel. His commitment to our institution and to the highest ideals of the academy are no less evident in the energy he brings to our instructional program and the judgment for which he is widely known on this campus and within our professional fraternity of chemists."

"Professor Beak has set a standard of excellence across the full spectrum of research, teaching and public service which is fully consonant with the tradition established by (Roger Adams). . . ."

In accepting the appointment, Professor Beak said, "My work has been possible because of the traditions which Roger Adams developed at Illinois. Our department is known for its excellent students, outstanding, supportive colleagues and first rate facilities. All of these have been essential for my research and teaching. I am honored to have the opportunity to carry on the great Illinois tradition."

Professor Beak joined the faculty in 1961 after obtaining his Ph.D. from Iowa State University. In 1992 he was appointed a Jubilee Professor of Liberal Arts and Sciences. Beak has received a number of honors and awards, the most recent of which is the 1997 Henry Gilman Award given by his Alma Mater. He has been elected to succeed to the Chair of the Chemistry Section of the American Association for the Advancement of Science.



Peter Beak

Schulten Appointed to a Swanlund Chair

Professor Klaus Schulten, Director of the Theoretical Biophysics Group at the Beckman Institute, has received the special recognition of a Swanlund Chair. These chairs were established by Marbelle Swanlund, a '32 alumna, to attract outstanding scholars to the U. of I. or to recognize those already on the U. of I. faculty.

Schulten founded the Theoretical Biophysics group in 1989. Today it has 35 members in addition to a diverse group of experimental and theoretical collaborators world wide, a large computational laboratory, and a regular seminar series. Schulten is a faculty member in four departments, Physics, Biophysics, Chemistry, and Electrical and Computer Engineering.

Klaus Schulten

His research focuses on the structure and function of biological nanostructures, e.g. aggregates of lipids forming membranes, complexes of proteins with DNA that control the storage and expression of DNA, and complexes of proteins that convert energy fueling the metabolism of biological cells. Schulten's group, along with faculty from the UIUC Department of Computer Science, has developed software tools that allow researchers to model nanostructures involving hundreds of thousands to a million atoms. The software to employ high performance parallel computers for biomolecular modeling and to use high end graphics workstations for molecular graphics is distributed throughout the biomedical research community.

Schulten's research interests are wide ranging, including the nanostructures that harvest sunlight in photosynthetic bacteria, proteins located in biological membranes which utilize light energy or oxygen to electrically charge cell membranes, proteins which drive motion and proteins which control DNA during morphogenesis, in healthy and diseased states as well as during aging. The research combines Schulten's expertise and interest in the fields of physics, biology and computing, paving the way for the new science of biomaterials.

Schulten received his Ph.D. in Chemical Physics from Harvard in 1974. Before coming to the U. of I., Schulten served on the faculty of the Technical University of Munich, Germany, was a Visiting Professor at Columbia University, and a Fellow of the Institute of Theoretical Physics in Santa Barbara. He received the prestigious Nernst Prize (1981), and has just been appointed a University Scholar at the U. of I. (1996), the University's highest award for outstanding research.

Jeffrey Kosman is the First Carter Fellow

The first named fellowship in the Department of Biochemistry has been established in honor of Professor Herbert Carter to recognize his multiple accomplishments as a scientist, teacher, administrator and statesman of science. The endowment was funded by Carter's former students, colleagues and friends. Jeff Kosman, a new graduate student in the Department, is the first recipient.

Jeff feels truly honored to have been chosen, especially because he admires Dr. Carter and his many accomplishments. As Jeff said, "The fellowship serves as a reminder of the great accomplishments that are possible with continued hard work. It will also remind me of what will be possible in the future with continued hard work."

Jeff recently discovered that a portrait of Carter hangs beside the steps in the chemistry library. As he put it, "When I go to the library to do research, Carter's picture looks down on me and asks whether I'm really putting out the best effort I can." He added, "Carter is a wonderful role model. I would like to believe that I will achieve the same high level of accomplishment. Fortunately, I have many years ahead of me in which to do it."

Kosman with his parents.

Jeff came to the U. of I. after receiving his bachelor's degree from Valparaiso University in Indiana. He described his former school as a small liberal arts college that provided a very good undergraduate education because the faculty knew their students well and were personally concerned about their growth and development. While a student at Valparaiso, Jeff had an opportunity to conduct research for two summers at Dow Chemical Company. The experience convinced him that he liked an industrial setting and that he wanted to get into a biological area of chemistry. Making a career choice has not been easy for Jeff because, although he majored in chemistry, he also carried strong minors in the humanities and Latin and enjoyed a wide range of subjects.

He chose the University of Illinois in part because he was invited to join the Cell and Molecular Biology Training Grant. Eight departments collaborate on this grant and offer the students a wide choice of advisors. Although it is not required, Jeff expects to choose an advisor in the Biochemistry Department. By December he expects to find out who his advisor will be.

Jeff can look back on many academic accomplishments from his undergraduate years. He received the Lumina Award at Valparaiso for maintaining a grade point average higher than 3.8 out of 4.0. He was a member of the academic honor society as well as a special society for students with outstanding grades in Latin. Among his other accomplishments was to become a member of the music honorary society. He has played the trombone since the 5th grade and hopes that, after he has settled down in his new home, he will be able to join some groups, possibly even outside his major field of studies.

The University of Illinois may be a big place, especially right after leaving Valparaiso but Jeff has settled in comfortably and feels happy here. As he says, "I had high expectations for my graduate studies and the U. of I. has met all of them."

Banquet Celebrates Successful Carter Drive

A banquet on October 12 celebrated the establisment of the Carter Fellowship in the Department of Biochemistry. The Carter drive's fund chairman, Charles Sweeley, and a good complement of Carter's friends and supporters attended the event. Jeff Kosman, the first Carter Fellow was introduced and met Herbert Carter, of whom he had heard a great deal.

Charles Sweeley and Herb Carter celebrate the successful outcome of the drive.

Hurd and Flugge the First Marvel Fellows

The generosity of Howard Hetzner B.A. '36 (Chemistry) has set up an endowment to fund fellowships in honor of the late Professor Carl (Speed) Marvel. Alexander (Sandy) Hurd and Lisa Flugge were the first winners of the Marvel Fellowships. Both are graduate students in organic chemistry and appreciate the honor conferred by the award.

Lisa Flugge

Lisa Flugge works for Professor Pete Petillo and reported that he introduced last year's Marvel lecture by reading excerpts from a history of our chemistry department, where Marvel played a most important role. The segments that she heard may not have done justice to the infinite number of amusing Marvel stories but they demonstrated why Marvel was so widely honored and admired. A Marvel lectureship has become an annual event in organic chemistry and a new endowment has been established in his name to provide stipends for chemistry graduate students.

In choosing among midwestern chemistry graduate programs, Lisa chose Illinois because she was impressed by the diversity in faculty interests. She saw the U. of I. as pushing back scientific frontiers in several areas and chose to work with Professor Petillo because his lab has a strong interdisciplinary flavor. She is conducting research in molecular biology, obtaining protein samples and enjoys her introduction to spectroscopy. She feels fortunate to have an opportunity to teach the spectroscopy class alongside her lab work.

Lisa came to Illinois from Iowa State University where she completed a B.S. degree and won honors for outstanding performance. She received a Phi Beta Kappa scholarship and won the departmental award as the top chemistry student for each of her years of study. She finds the program here "demanding but possible." Illinois has fully lived up to her expectations. She loves chemistry and feels very honored to have been chosen as one of the first two winners of the Marvel Fellowships.

Sandy Hurd and Lisa Flugge flank a bust of Marvel.

Alexander (Sandy) Hurd

Sandy followed a different path from many other graduate students who move directly from college to graduate school. He graduated from Colgate University in '92 and worked at Pfizer for two years before coming to the University of Illinois. He was well satisfied with his undergraduate training at Colgate where he graduated with honors after completing an interesting undergraduate research project which gave him the necessary background to step right into the lab at Pfizer. He worked in the animal health division of the company, making antibacterial analogs. Although he enjoyed his work, he gradually realized that "there was more out there in chemistry that he could learn elsewhere" and he returned to school to do so.

He chose Illinois because of its strong organic chemistry program and because he knew from his friends at Pfizer that our chemistry department was well respected nationally. He is favorably impressed with the quality of our facilities and with the structure of the graduate curriculum. He is currently working for Professor Denmark, applying new synthetic methods to the synthesis of complex natural products. They begin with simple molecules and build complex structures demonstrating efficient techniques for synthesis. At present, Sandy is working on pyrrolizidine alkaloids, compounds which posses a wide range of biological activities

Sandy's plans are to return to the pharmaceutical industry when he completes his degree. But before he does so, he hopes to take postdoc training in some other program to achieve a balanced education. He considers himself fortunate to have had an opportunity to mature on the job and is now able to concentrate on his work without debating whether he should be doing something else. One of the advantages of living in Champaign-Urbana is that there are few distractions so that he can be very productive. It is well because he finds that in Denmark's laboratory a great deal is expected of you but you also receive a lot of help from the other students, from the postdocs and from Professor Denmark himself.

Alum Worked on Team that Won the Nobel Prize

If the rules of the Nobel Committee did not limit the number of winners to three, Sean O'Brien, B.S. '84 (Chemistry) might have been a nobelist himself for the discovery of C_{60}, buckminsterfullerene. As it was, both the Nobel Committee and the leader of the team mentioned that there were two students who contributed substantially. One of them was Sean and he has been invited to Stockholm to participate in the festivities.

Sean O'Brien (left) receives congratulations from Professor Dana Dlott (center) and Professor James Lisy (right).

Sean committed himself to graduate study at Rice University even before he finished his B.S. here. He started working for Rick Smalley, the buckyball team leader the summer before he began graduate school and wrote two papers resulting from his work. In his second year at Rice he started working on large carbon clusters. Within two weeks, the group had identified C_{60} along with the soccer hall shape and had submitted a ground breaking article to *Nature*. That was only the beginning. They discovered C_{70}, and even super giant clusters. They learned that the large clusters had a hole in the middle where you could introduce metal atoms. In C_{72}, you can even insert 2-3 metal atoms. This led to the birth of a new field of chemistry known as fullerene chemistry and a new class of materials between pure metal and pure carbon. Sean received his Ph.D. in '88, four years after leaving the U. of I.

Eleven years have passed since the discovery, but the field is still in its infancy. A group at AT&T discovered that C_{60} is one of a new class of superconductors that loses its resistance at the relatively high temperature of 35°-40° Kelvin. The practical uses of buckyballs is still in the guessing stage. Buckytubes or nanotubes have been constructed with a tensile strength greater than steel. One possibility is to flatten out the nanotubes and to weave the strands into a string or fiber. There are visions of airplanes lighter than the current version because nanotubes could be used in their construction. Practical applications are still dreams rather than reality but, considering the history of science and invention, a long lag time should not be surprising.

Sean gives very generous credit to his training at Illinois. His experiences here showed him where his talents lay. His first course in physical chemistry showed him his future and he has never deviated. He did not fully appreciate the excellence of the U. of I. program until he started at Rice and found that their graduate courses were the equivalent of junior level courses of the U. of I. In retrospect, he describes his undergraduate education at the U. of I. as "phenomenal." As he says, "Rice was good but Illinois was outstanding." He likens it to the difference between a midwestern "fancy dinner" and a dinner at a four star French restaurant.

His other advantage at Illinois is that he had the opportunity to work in the old Flygare lab where he learned how to use vacuum pumps, computers, electronics, and to make measurements using complex machines. In the course of his undergraduate research, he first worked on a project on solids with Professor Dlott and subsequently, with Professor Lisy, he completed a senior thesis project on clusters. By the time he arrived at Rice, he had worked with giant diffusion pumps and felt very much at home with the Rice equipment. Because of his excellent training in the Flygare lab, he always felt that Flygare was his third mentor, even though he had died several years previously. According to Professor James Lisy, Sean graduated as one of the top physical chemistry students.

After the excitement of the large carbon cluster experiments, Sean spent two years at Rice as a postdoc, working on femtosecond Raman spectroscopy and then took a position at Texas Instruments where he has been ever since. He has just been given a major promotion to Senior Member Technical Staff, a position he likens to receiving tenure at a university. He finds that a great deal of chemistry is involved in the manufacture of semiconductor chips and he does both wet and surface chemistry. About half his colleagues are chemists.

In the long run, he is considering a return to academia, possibly in five years or so. He enjoys intellectual activity and is confident that the success of his projects will help him back into academia when he is ready. He hopes to continue with "the luck of the Irish."

Jing Li is the first Chia-Chen Chu Fellow

Jing Li read the pamphlet on Dr. Kang, the donor of the fellowship and commented "I hope that one day I will be like her. She is a remarkable lady, not only because of her great achievements in science, but also because of her generous support for female Chinese students who are pursuing advanced education abroad, just like she did 50 years ago."

Jing Li graduated from the University of Science and Technology in Mainland China. She was an outstanding student. She won a scholarship every year and in the last two years before graduating she received the highest honors in that school. When she graduated, she had the option of taking a graduate degree in China or elsewhere or to take a job. She received an offer of a management position at Procter & Gamble.

However, she decided that obtaining a Ph.D. at a first rate American school would be her best option and she applied to the U. of I because she was interested in the new area of bioinorganic chemistry. She is working for Professor Yi Lu and is impressed with his achievement in the short time that he has been at the University of Illinois.

Her research is on ribozyme, a kind of RNA that functions as an enzyme. This field of research opened up in the late 80s and she finds it exciting to be working in this new field. She finds the laboratory very congenial. The atmosphere is friendly and she has good relations with the group members.

Jing Li

She has already completed her teaching assignments and was delighted that her teaching evaluations improved dramatically between the first semester and the second. She plans to finish her Ph.D. and then take a postdoc for 2-3 years before returning to China to look for an industrial position. She is delighted to have been chosen as the first Chu Fellow and said, "Thank you for letting me show my appreciation for Dr. Kang and my advisor, the two persons who have set good models for me."

Job Search in Cyberspace

On the 'Net' you can find long lost friends and the best egg roll in your neighborhood. You can also find employment opportunities as well as salary/cost of living calculators to help you compare job benefits. A site called JOBWEB at http://www.jobweb.org probably contains the most detailed information and has the most links to other related programs. Other recommended job search programs include the following:

Best bets from the 'Net' at http://asa.ugl.lib.umich.edu/chdocs/employment/job-guide.toc.html
Career Magazine at http://www.careermag.com/careermag
Interactive Employment Network at http://www.espan.com
The Monster Board at http://www.monster.com
On-line Career Center at http://www.occ.com/occ/
Environmental Careers World On-Line at http://www.infi.net/~ecw
Careersite at http://www.careersite.com and
Job Center at http://www.jobcenter.com

A few of the best sites for calculating relocation costs among the Salary Calculater/Cost of Living websites are at http://www.jobweb.org/catapult/cities.htm and at http://espan2.espan.com/career/p1/dir/relo/cost.htm. For salary calculators look at http://homefair.com/homefair/cmr/salcalc.html or at http://jobsmart.org/tools/salary/.

The School of Chemical Sciences Placement Office recommends electronic job searches as a supplement to on-campus recruiting and resume writing campaigns. However, it is important to remember that you cannot control the confidentiality of information you supply on the internet.

Alumni News

'30s

Alfonso Montero Muelle, BS '35 (Chemical Engineering) was awarded the Centennial Gold Medal by the National Industrial Society of Peru. He is currently retired.

Vernon G. Parker, BS '36 (Chemical Engineering) has been living in Florida since his retirement 21 years ago. The last 29 years before his retirement he worked for the Goodyear Patent Department.

Harry Yale, B.Sc. '37 (Chemistry) has been inducted into the New Jersey Inventors Hall of Fame. Before his retirement he was a Senior Research Fellow at Bristol Meyers Squibb in New Brunswick, NJ.

'40s

Arthur W. Anderson, Ph.D. '41 (Chemistry with Adams) has been a consultant for DuPont since his retirement in '82. He worked for DuPont for 41 years in research supervision and management.

Norman L. Carr, BS '46 (Chemical Engineering) has been a consultant for Statoil of Norway since 1986.

Ralph Fisher, BS '48 (Chemical Engineering) retired in '95 after spending most of his career managing Fatty Chemical Plants. He is a consultant in Memphis, TN.

Albert Humphrey BS '46 (Chemical Engineering) has been elected to the Board of Directors of East West Herbs Ltd. in Kingham, England. He has also been appointed a director of Webb Corporation Ltd. In Derby, England and CEO of Retainacar Ltd., a company which marks and registers high value items to deter theft and provide verification of ownership.

Sidney Loeb, BS '41 (Chemical Engineering), together with a partner, was honored for development of the first commercial reverse osmosis desalination membrane by the North American Membrane Society. Loeb received his Ph.D. in '64 from UCLA.

'50s

Lester Coleman, Ph.D. '55 (Chemistry with Marvel) received the 1995 Honor Award from the Commercial Development Association for outstanding leadership in building a

Alumni News continues on the next page

Alumni News

technology-driven business. Dr. Coleman has been CEO of Lubrizol since '78. He received an honorary Doctor of Humane Letters degree from Lake Erie College.

Myron Feldman, BS '50 (Chemistry) would like to get in touch with other former members of "The Munchausen Castle Guards" of Company C, Third Battalion, National Society of Pershing Rifles, UIUC Chapter. Feldman was team leader at the Illinois Drill Meets in '50 and '60.

Martin Goldstein, BS '55 has been named President of the New York Intellectual Property Law Association. He is affiliated with the firm of Darby & Darby in NY.

William T. Jackson, B.S. '55 (Chemistry) reports that he talked with **Charles "Hap" Fisher**, Ph.D. '32 (Chemistry with Fuson) and learned that he and **Herb Carter**, Ph.D. '34 (Chemistry with Marvel) had their first taste of alcohol together one night when they were both graduate students. Jackson is a research scientist with Eli Lilly & Co.

'60s

Warren W. Lanier, Ph.D. '64 (Chemistry with Malmstadt) retired after 31 years in synthetic polymer/fiber R & D with Monsanto Co. His last position was Team Leader with Analytical R & D.

Steve Miller, BS '67 (Chemical Engineering) has been appointed to the Presidium of the Board of Directors of Shell Petroleum NV, Managing Director of the Shell Petroleum Company Ltd. and a Director of Shell Petroleum Inc., thereby becoming Group Managing Director.

Robert Petkus, BS '67 (Chemical Engineering) has joined M-C Power Corporation in Burr Ridge, IL.

Craig E. Plassmeyer, BS '67 (Chemistry) is a partner with Ernst & Young. He became a CPA in '81 and joined Ernst & Young in '96 to provide internal audit services and fraud investigation for clients.

George Robertson, BS '65 (Chemical Engineering) is leading a research unit for the United States Department of Agriculture in Albany, CA. He is focusing on novel uses of agriculture products and improved processing methods for existing products.

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Seemon Pines Establishes Award for Best Presentation

At the 10th annual Organic Area Pines-Merck Allerton Conference, an announcement was made that Seemon Pines, Ph.D. 1951 (Chemistry with Leonard) has endowed an award to recognize the best graduate student presentation each year. The Allerton Conferences were founded when Dr. Pines received the Director's Scientific Award from Merck in 1987 in recognition of his achievement in developing the broad spectrum antibiotic Primaxin. Dr. Pines was given an opportunity to assign the monetary portion of the Director's Award to an educational institution of his choice and decided to support an annual conference by the organic division of the U. of I. Chemistry Department.

The conference is organized by graduate students in organic chemistry, representing the different research groups. One oral presentation is given by a member of each group. The conference attracts not only the advanced organic graduate students but also the newcomers who receive an opportunity to learn the research interests of each group, the postdocs, and the faculty. The co-chairpersons for 1996, Heather Sings and Gregory Tew, both remarked that the conference offered an excellent opportunity to learn about the groups and to get to know both the students and the faculty in a friendly, informal setting. This is becoming increasingly important because, as the field becomes more interdisciplinary, the groups are more physically separate, some working in the Beckman Institute and some in the Materials Science Department.

Professor Beak, the faculty member in charge of the conference, described the collegial atmosphere and remarked that the talks compare to the best at the ACS meetings because the students want to grow professionally and do their best before their peers. Greg Tew described the conference as a "unique opportunity for students to present their work to a friendly audience."

In his opening remarks to the conference Dr. Pines called attention to the importance of giving students an opportunity to make professional presentations. He told the students that their careers will depend upon what they say and how they say it more than they can imagine. He added that their communications will affect their relationships with their bosses or department heads, their spouses and their children. It will affect their compensation and he added, "but little, if any of your formal education and training will have touched on this skill."

Seemon Pines (at left) presents plaque to James Nelson (right), award winner.

He indicated that the idea for a prize for the best presentation at the Allerton Conference reflects his personal love and interest in self-expression. Dr. Pines presented the 1996 prize to James Nelson, a student of Professor Jeffrey Moore, and a Roger Adams Fellow.

Don De Coste Wins Golden Apple Award

As part of its community service program, the BankChampaign sponsors golden apple awards for the best teachers in the community. Winners have ranged from elementary to high school teachers, but Don DeCoste is the first to receive the honor at the University. A local TV station televised an interview with Don and showed it on prime time television.

Don received his B.S. in chemistry from the U. of I. in 1988, followed shortly by a teaching certificate. For four years he taught high school chemistry in California. He became immersed in the problems of teaching chemistry and returned to the U. of I. for a Ph.D. in Science Education, which he received last summer.

During the time he completed graduate work, he taught in the Chemistry Merit Program. For his thesis, he recorded group discussions among the students in the Merit Program in order to systematize the principles of learning that were operating. His principle discovery was that learning how to learn was far more important than learning facts in order to master the basics of chemistry. He has made presentations of his findings to various groups of high school science teachers and finds that they are so concerned about covering the material in the textbooks that the students do not have sufficient time to master the principles of learning. His approach is to concentrate on the way to learn. Students who have adopted his approach have little difficulty in mastering facts and solving scientific problems.

The success of his methodology is reflected in the high performance level of his students and in the high regard in which he is held. Last year, he received a teaching award from the College of Liberal Arts and Sciences based on input from student evaluations. Excerpts from the letter of nomination for the Golden Apple Award, written by Sara Pluth, one of his former chemistry students, illustrates these points. She wrote:

"Don De Coste was my TA last year. . . . He is, in my opinion, the best teaching assistant in the chemistry department, and most likely the best TA on campus. He is well liked by everyone, students and faculty alike. Don cares about how his students are doing. He is dedicated to teaching and always makes himself available whenever one of his students needs extra help."

"My goal is to become a high school chemistry teacher, and I hope that I can be even half as good at teaching as Don De Coste is. Don is a great teacher and a great person. He deserves this recognition more than any teacher I know or have known."

Don De Coste teaching his merit class.

Alumni News

Ravi Singhania, BS '67 (Chemical Engineering) is General Manager of BASF Corporation in Freeport, TX. He was elected Vice-Chairman (Chairman Elect) of the Texas Chemical Council and was named Brazosport Chamber of Commerce Man of the Year.

Kamalesh K. Sirkar, Ph.D. '69 (Chemical Engineering with Hanratty) has been promoted to Distinguished Professor of Chemical Engineering at New Jersey Institute of Technology.

Ho Yu, BS '67 (Chemical Engineering) received the Francis C. Frary Award for technical excellence from the Alcoa Foundation. Dr. Yu is Senior Technical Specialist of the Molten Metal Processing Division, Alcoa Technical Center.

'70s

John Anderson, Ph.D. '71 (Chemical Engineering with Quinn) has been named Dean of the Engineering College of Carnegie Institute of Technology. He is a member of the National Academy of Engineering and was named a Fellow in the American Institute of Medical and Biological Engineering.

Gilead Fortune, Ph.D. '71 (Chemical Engineering with Henratty) is President of IMI (TAMI) Institute for Research & Development Ltd., Israel Chemical Group, In Haifa Bay, ISRAEL.

Dimitri Hatziavramidis, Ph.D. '78 (Chemical Engineering with Hanratty) is a process engineer with GE Plastics.

Robert Hohlman, BS '74 (Chemical Engineering) has been appointed project manager for engineering design and procurement of main materials for a new lubricating oil blend plant being built for Shell Oil Co. in Tianjin, PRC.

William Kays, BS '77 (Chemical Engineering) has joined Cincinnati Bell Telephone Company to assist their efforts in shifting from a regulated environment to a competitive one.

Myron Lee, Ph.D. '75 (Chemical Engineering with Hanratty) is now Senior Maneging Director of Sukyong Industries in Korea.

Al McMahon, MS '77 (Chemistry) has joined GE Plastics in Mount Vernon as an attorney in the environmental, health, and safety area. He holds a J.D. degree from Washington University in St. Louis, MO.

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Alumni News

James Marek, BS '78 (Chemical Engineering) is a Fellow Engineer at Westinghouse Savannah Riber Company in Aiken, SC.

Patrick Ng, MS '76 (Chemical Engineering) has been named Chairman of the Electrochemical Society New Technology Subcommittee. He is a Distinguished member of the Technical Staff at Lucent Technologies' Bell Laboratories in Dallas, TX.

Keith Reese, BS '79 (Chemical Engineering) is factory manager of Fab 12, Intel's newest 0.35 wafer fabrication facility.

Kathryn Graessley Severin, BS '76 (Chemistry) completed her Ph.D. in Physical Chemistry from Michigan State University in January '97. She also received one of six Excellence-in-Teaching Citations for Graduate Assistants presented annually by Michigan State University.

Gary Sprague, MS '71 (Chemistry) is Astronomy Instructor and Planetarium Director at North Medford High School in Medford, OR.

Todd Walker, BS '77 (Chemistry) has been appointed President and COO of Fairmount Chemical Co., Inc. in Newark, NJ. Prior to moving to Fairmount, Walker had worked with KPMG Peat Marwick after receiving his MS in Business Administration from the U. of Wisconsin, Milwaukee passing his CPA exam.

'80s

Thomas Anderskow, BS '82 (Chemical Engineering) is Business Director - Coatings, of the J.M. Huber Corporation in Macon, GA.

Julio Baez, Ph.D. '81 (Biochemistry with Gumport) is involved in biotechnology research at Monsanto, pharmaceutical development. He is Director of Technology Development at Monsanto.

David A. Bernlohr, Ph.D. '82 (Biochemistry with Switzer) has been named Interim Head of the Department of Biochemistry at the University of Minnesota.

Joseph Burkhardt, BS '86 (Chemical Engineering) is developing computer chips at VTC, Inc. in Bloomington, MN.

Alumni News continues on the next page

Hall Wins Cooperative Research Award

Henry K. Hall Jr., Ph.D. '49 (Chemistry with Frank) received the 1996 Cooperative Research Award in Polymer Science and Engineering from the ACS Division of Polymeric Materials. The award, which was established in 1992, recognizes significant and sustained cooperative research in polymer science and engineering at the industrial/academic or industrial/national laboratory interface.

Henry Hall

Hall has been a professor at the University of Arizona since 1969. His research has focused on polymer synthesis. His experience as an industrial researcher, coupled with his knowledge of organic polymer synthesis, has made him a valuable consultant for the polymer industry. He has produced joint publications and patents with industrial researchers at 10 different companies including Hoechst Celanese and Eastman Kodak. For his many contributions to polymer science he received the 1996 ACS Award in Polymer Science and the Award for Distinguished Service in the Advancement of Polymer Science from the Japanese Society for Polymer Science.

Midwestern Analytical Chemists of MUACC Celebrate 50th Anniversary at U. of I.

Since 1947 the Midwestern Universities Analytical Chemistry Conference has been meeting annually to discuss teaching strategies and research programs. The anniversary program was organized by Professor Alexander Scheeline on October 24-26 at the University of Illinois. Seventy faculty, about half from four-year colleges, attended the event. Presentations were interspersed with poster sessions by U. of I. students and visitors.

The banquet was subsidized by GFS, Inc., a tradition established by the famous "anonymous donor," known to practically everyone as G. Frederick Smith, former faculty member at the U. of I. from '21-'55. His family company , GFS Inc. in Columbus, OH, is the largest manufacturer of halogenated reagents in the country. After Smith's death, the "anonymous donor" officially became GFS, Inc. which has subsidized the annual meeting banquet ever since. Thanks to generous financial support especially by Procter and Gamble and also from the Eastman Chemical Company, the conference was able to charge nominal fees, which encouraged attendance by young faculty.

Alexander Scheeline

Barton Brought NSF Fellowship

Benjamin Barton is an outstanding fourth year graduate student, working with Professor Anthony McHugh. In his final year at the University of Kentucky, where he received his B.S. degree in '93, he applied for two fellowships, an NSF and another from the Department of Defense. He received both but had to choose between them, so he opted for the NSF.

He also had to choose between graduate schools and had almost decided to go elsewhere when he was persuaded to visit the U. of I. The visit was decisive. He was impressed by the quality and variety of our facilities, i.e. the computing center, electronics shop, glass shop and other services seemed well organized so that he concluded that the tools were available for virtually any project he chose. He found our School of Chemical Science and the Department of Chemical Engineering so strong that he felt confident that "no matter what project I decided on and where it would lead me, there would be people at this university who could help me, and this included faculty from other departments as well."

The NSF fellowship has provided a generous stipend and he has found a very interesting project which has become his thesis. He is studying the dynamics of polymeric membrane formation. The membranes are important in many industries to facilitate the separation process, for example, in the desalination of water, and also for the separation of protein molecules, vitamins, and other products. The advantage of the membranes is that the separation can be carried out at low temperatures, avoiding heat damage.

Benjamin Barton

The membranes are judged by their selectivity and flow rate, both of which are determined by the morphology of the membrane. His thesis deals with the process and conditions which affect the structure of the membrane. Specifically, he is studying the process of phase inversion to form the membrane. The polymer is dissolved in a solvent and then cast into a thin sheet or hollow fiber or whatever structure is desired. The polymer is then separated from its solution and the membrane remains.

In the past, this process involved much trial and error because there are many variables including the non solvent quench and the temperature quench, all of which determine the morphology of the membrane. By modeling the phase separation process, Barton is developing a system where the morphology can be predicted by the quench conditions, which will shorten the process by eliminating a great deal of trial and error.

Because of the high quality of his work, Barton was given an opportunity to present a poster session at the North American Membrane Society Meeting. Another poster presentation at the AIChE National Convention won him first place in his division at the student poster contest.

Barton is moving into the last phase of his work here and hopes the future will clarify itself before he finishes. He is torn between going to industry and academia and remarks, "Right now I can't make up my mind, so I think that, in the course of my life, I'll probably do both."

Alumni News

Sila Consever, BS '82 (Chemical Engineering) is Vice President of Research and Development at the Boston based Au Bon Pain Co.

Demetre J. Economou, Ph.D. '88 (Chemical Engineering with Alkire) was named John & Rebecca Moores Professor at the University of Houston. He also serves as the Associate Chairman of the Department of Chemical Engineering.

James Fenton, Ph.D. 84 (Chemical Engineering with Alkire) and **Suzanne Fenton**, Ph.D. '88 (Chemical Engineering with Hanratty) are both on the faculty of the Department of Chemical Engineering at the University of Connecticut.

Stephen Fergusen, BS '88 (Chemical Engineering) has just moved to Cardiff, Wales for a four-year assignment with Dow Corning to work on a new capital project.

Mike Fischer, B.S. '85 (Chemical Engineering) has been promoted to Vice President, Sales & Marketing, for Freedom Textile Chemicals Co. in Charlotte, NC.

Michael J. Fleck, BS '87 (Chemistry) is an attorney with Fleck & Associates in Huntley, IL. He has been awarded a patent for a carbon monoxide filter and published an article in the Illinois Bar Journal on the Illinois "Brownfields" law. He graduated from Chicago Kent College of Law in '95 with high honors and is now in private practice.

Scott Goffinet, BS '89 (Chemical Engineering) is a process engineer at Amoco in Joliet , IL.

Roy Kimura, BS '89 (Chemical Engineering) is an Associeto Scientist working in the process cell culture group at Medimmune, Inc. in Gaithersburg, MD.

Gregory Leman, Ph.D. '85 (Chemistry with Hanratty) is Managing Director of Cabot-Huels GmbH in Rheinfelden, Germany

Alfred O'Neill, BS '85 (Chemical Engineering) has been promoted to the office of CTO at the corporate headquarters of Spyglass.

David Robertson, Ph.D. '81 (Chemistry with Katzenellenbogen) has taken a position at the Experimental Station of DuPont Merck Pharmaceutical Company in Wilmington, DE

Alumni News continues on the next page

Alumni News

Eric R. Schnake, BS '85 (Chemical Engineering) is Principal Engineer with Bayer Corporation/Biologicals in Clayton, NC. Beginning in January '97 he began a multiple year assignment with Bayer Biologicals in Siena, Italy, as engineering leader for a major expansion of the company's European plasma (human) fractionation facility.

Michael Sodaro, BS '88 (Chemical Engineering) is manager of the Waste Management Department at Argonne National Laboratory.

Scott Sommer, BS '81 (Chemical Engineering) has become a full partner in the Delta Group, a professional engineering firm in Cincinnati, OH.

Donna Stevens, BS '84 (Chemical Engineering) is a team-sub in Bechtel's San Francisco Offices for Navy CLEAN II work.

Ronald Taibl, BS '84 (Chemical Engineering) is working at a laminate systems manufacturing plant for Allied Signal in Chandler, AZ.

Amy Chen Vollmer, Ph.D. '83 (Biochemistry with Switzer) has been promoted to Associate Professor of Biology with tenure at Swarthmore College in Swarthmore, PA.

'90s

Chris Aiken, Ph.D. '91 (Biochemistry with Hager) is an Assistant Professor of Microbiology at the Vanderbilt University School of Medicine, studying the molecular biology of human immunodeficiency viruses.

Carolyn Behling, BS '92 (Chemical Engineering) is working for International Paper Co. in Selma, AL.

A. Craig Bushman, Ph.D. '93 (Chemical Engineering with McHugh) is employed as a Research Associate at International Paper's Packaging Technology Center in Cincinnati, OH.

Mark Cal, BS '91 (Chemical Engineering) is a visiting Assistant Professor in Environmental Engineering at the U. of I in Urbana, IL He received a Ph.D. in Environmental Engineering from UIUC in '94.

Michael Finnemore, BS '95 (Chemistry) worked at an environmental laboratory, analyzing ion chromatography and HPLC samples for a year before entering a graduate

Alumni News continues on the next page

Faculty Honors

Bill Schowalter, Professor of Chemical Engineering and Dean of the College of Engineering, has received a Doctor Honoris Causa from the Institute National Polytechnique de Lorraine in Nancy, France. He has also been appointed to serve on the International Advisory Panel for the National University of Singapore.

Jeffrey S. Moore, Professor of Chemistry, has been named a University Scholar, the highest award for a scholar given by the University of Illinois.

Moore has also received a 1997 Alfred P. Sloan Fellowship.

Paul Bohn, Professor of Chemistry and Department Head, has received the 1997 ACS Award in Spectrochemical Analysis.

Martin Gruebele, Professor of Chemistry, has received a 1997 Alfred P. Sloan Fellowship.

Charles Zukoski, Professor of Chemical Engineering and Department Head, has received the Senior Moulton Medal, together with two students, for the best publication in 1996 in "Chemical Engineering Research and Design," the journal of the British Institute of Chemical Engineers. Zukoski is also the recipient of the 1997 Ralph K. Iler Award in the Chemistry of Colloidal Materials.

Peter Beak, Professor of Chemistry, received the Henry Gilman Award from Iowa State University.

Beak is in line to succeed to the Chair of the Chemistry section of the American Association for the Advancement of Science.

Dana Dlott, Professor of Chemistry, has been elected a Fellow of the American Physical Society.

Kenneth Rinehart, Professor of Chemistry, has received the Ernest Guenther Award in the Chemisty of Natural Products from the American Chemical Society.

James Wentz, Research Engineer in the Electronics Shop of the SCS, was named the 1996 Outstanding Academic Professional in the School of Chemical Sciences.

Collman Wins Bader Award

James P. Collman, Ph.D. '58 (Chemistry with Fuson) has won the Alfred Bader Award in Bioinorganic or Bioorganic Chemistry. The George A. & Hilda M. Daubert Professor of Chemistry at Stanford University, Collman has created models of biological chemicals that have led to greater understanding of the biochemical world.

James Collman

His most impressive model created a turning point in the study of oxygen binding to hemoproteins. He invented functional analogs of the oxygen carriers hemoglobin and myoglobin and of the oxygen activating site in cytochrome c oxidase, the enzyme that metabolizes oxygen during respiration and is the cell's powerhouse.

According to one of his colleagues, "Collman has had a major impact on our understanding of the chemistry of biological systems by his invention and synthesis of functional models that mimic their properties and reactions."

Collman has been a member of the National Academy of Sciences and the American Academy of Arts and Sciences since 1975. In addition to his significant research, he is also a prolific lecturer. One colleague describes him as follows, "Collman keeps moving into new territory and refuses to rest on his laurels."

Parshall Awarded Lavoisier Medal

George Parshall

George Parshall, Ph.D. '54 (Chemistry with Fuson) has received a Lavoisier Medal for Technical Achievement from the DuPont Company. The medal was created in 1990 to honor scientists and engineers "whose careers were marked by creative contributions that resulted in a measurable impact or significant technical achievement." Medalists are inducted into the Lavoisier Academy and memorialized by bronze plaques on permanent display at DuPont's Experimental Station.

Parshall has been with DuPont since receiving his Ph.D. in 1954. He has advanced the field of catalysis and chemical research, both by his own research and by his thoughtful leadership of others. He has provided important insights in fields as diverse as C-H bond activation, molten salt catalysis, membrane catalysis and bio-inorganic chemistry.

Dr. Parshall has been Director of Chemical Science Research at the Experimental Station. He is a widely recognized scientist, elected to the National Academy of Science and a Fellow of the American Academy for the Advancement of Science. In 1989 the ACS awarded him the Earle B. Barnes Award for Leadership in Chemical Research Management. He has written a standard reference work on Homogeneous Catalysis . A second edition of this work was published in 1992.

In Memoriam

Belatedly, we have learned of the death of **Dr. Bernard Bluestein**, Ph.D. '49 (Chemistry with Marvel) in September, 1995.

We have learned of the death of **Henry Brownstein**, BS '24 (Chemical Engineering).

C. Norman Collard, BS '34 (Chemical Engineering) died on March 9, 1996. After working two years for Shell Oil Co., he went back to school of obtain his MS degree from the University of Michigan in Petroleum Engineering. He worked for E.B. Badger Co. of Boston until they were purchased by the Stone and Webster Engineering Co.

Clarence England Denoon, Jr., Ph.D. '38 (Chemistry with Marvel) died in February, 1997. He retired from Rohm & Haas in 1976 as Senior Vice President and member of the Board of Directors. He was also a director of Sartomer Industries and Technology Service Corporation and Vice President of Tri Ex Oil and Gas Co. Until recently he had been managing partner of the Englehold Group and Director of the Alderbaugh Foundation.

We have learned of the death of **Tom S. Ellis**, BS '40 (Chemistry).

Mrs. Mattie Pitner Gallagher, BS '35 (Chemistry) has passed away.

Word has reached us of the death of **Deane W. Hullinger**, BS '43 (Chemistry).

Word has reached us of the death of **Eldon M. Jones**, BS '36 (Chemistry) in February, 1996.

We have learned of the death of **Dr. Ralph O. Kerr**, Ph.D. '53 (Chemistry with Fuson).

We have learned of the death of **Peter M. Krager**, MS '39 (Chemistry).

Robert William Krebs, Ph.D. '37 (Chemical Engineering with Johnstone) died in March '96. Dr. Krebs spent his entire career in research and development at Exxon in various locations. At the time of his retirement he was coordinator of chemical research.

We have been informed that **Melville A. Rogers**, MS '42 (Chemistry) died on June 4, 1994.

World has reached us of the death of **Dr. N. C. Schieltz**, Ph.D. '38 (Chemistry with Clark).

We have learned of the death of **Harris R. Till**, BS '48 (Chemistry).

Alumni News

program at the University of Utah. He is presently working towards an MS in Public Health with emphasis on industrial hygiene and environmental waste management.

Brian Frederiksen, BS '92 (Chemical Engineering) is a senior engineer with Procter & Gamble.

Nancy Counts Gerber, Ph.D. '93 (Biochemistry with Sligar) has taken a position as Assistant Professor in the Department of Chemistry and Biochemistry at San Francisco State University.

James S. Godde, Ph.D. '93 (Biochemistry with Widom) has just accepted a position as Assistant Professor in the Biology Department of CUNY-Brooklyn College.

Martin Gonzales, BS '90 (Chemical Engineering) is a research engineer at Amoco Petroleum Products. In '95 he received his Ph.D. from the University of Wisconsin at Madison in Chemical Engineering.

Christopher Lee, BS '90 (Chemical Engineering) is a patent/trademark attorney for Niro, Scavone, Haller and Niro in Chicago, IL.

Stephen Norton, BS '92 (Chemical Engineering) founded Inter Access, a Chicago area Internet provider.

Jeremy Overmann, BS '93 (Chemical Engineering) works with the Institutional Water Treatment Program at the Illinois State Water Survey.

Kerri Seggebruch, BS, '94 (Chemistry) is working for FMC as a research chemist.

Douglas Sneddon, Ph.D. '95 (Chemistry with Gewirth) has been appointed manager of the steam generator materials group at the Westinghouse Bettis Atomic Power Laboratory in West Mifflin, PA.

David Spalt, BS '90 (Chemical Engineering) is a Production Engineer in en ethylene oxide manufacturing unit et Olin Corporation in Brandenburg, KY.

Teresa Stone, BS '93 (Chemical Engineering) is working toward a Ph.D. in Pharmacy at the University of Cincinneti.

Daphne Schilling Van Buren, BS '96 (Chemical Engineering) is a Scientist I at Kimberly-Clark

Excellence Needs Your Help

Help us to maintain and expand our programs by supporting Chemical Science Funds. We have listed below the most active funds in the three departments. If you would like to contribute to a fund not listed, please enter the name beside OTHER.

Matching gifts from your company multiply your dollars. If your company has a matching gift plan, please include a form from your company along with your contribution.

Remember — your contributions make a GREAT difference!

Mark the appropriate box. If sending a check, please make it out to UIF/(fund name). A preaddressed envelope is enclosed for your convenience.

- ☐ *School Facilities Fund:* Upgrades infrastructure, such as the chemistry library, machine and electronic shops, NMR, micro analytical, and mass spectrometry laboratories.
- ☐ *Carter Fellowship Fund:* Supports the first named fellowship in Biochemistry.
- ☐ *Roger Adams Fund:* Supports the Roger Adams Professorship and funds teaching awards, relocation allowances, and undergraduate scholarships.
- ☐ *Marvel Fellowship Fund:* Supports fellowships for graduate students.
- ☐ *The ChE2000 Fund:* Supports educational enhancement in Chemical Engineering.
- ☐ *The Chemical Engineering Annual Fund:* Provides seed money, instructional and research support.
- ☐ *Unrestricted Fund/Chemistry:* Provides start-up funds for new faculty and for other vital needs.
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College Teaching Award to Blowers

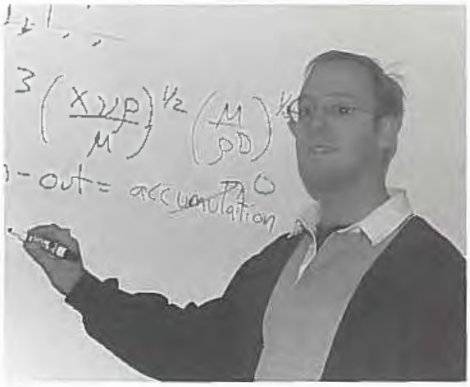
Paul Blowers likes to teach, and his students appreciate his skills. In his first year as a graduate student, his teaching evaluations earned him a School of Chemical Sciences teaching award. He received the award again in his second year. Now in his third year, he has won a Prokasy Teaching Award from the College of Liberal Arts and Sciences and has been nominated for an all-campus award. He is very pleased but finds it hard to believe his good fortune. As he says, "It's amazing that a student would nominate me and fill out all the necessary paperwork."

Because he enjoys teaching, Blowers finished his teaching requirement and has been volunteering to take discussion sections ever since. He anticipates continuing his volunteer teaching next year as well. One of the teaching principles that he ascribes to is to extend the students' horizons as he answers their questions. He tries to relate each question to the broader field of study to make them aware of the importance of this question and its relevance to subjects down the line. He likes to point out the global interconnectedness of different subjects and he also shares with the students his problem solving skills as an aid to future learning.

Blowers learned his teaching skills as an undergraduate at Michigan State University. He discovered that he had trouble in public speaking and decided to do something about it. He volunteered to help introduce potential newcomers to the campus and found that with practice he became a good teacher and entertainer as well.

He entered the U. of I. in '95 after having visited several campuses. He decided that our campus had "the best atmosphere." He liked the opportunity to meet and talk to any student he chose. He recounted that this was not true at some other schools where he was not allowed to meet any first year students because "they tended to be under stress and not very happy."

He is working for his Ph.D. on a catalysis problem with Professor Richard Masel in Chemical Engineering. His research is going well and he is writing a theoretical MS thesis. The extra work he did as an honors student in his undergraduate studies is helping him in his graduate work. He spent all four years in a special program reserved for the top 2%-4% of the freshmen class. In each course he was given additional assignments which earned him extra credit and also broadened his academic experience. He leans toward academia as a career. If he succeeds, he will be the first Masel student to have become an academic.



Paul Blowers

At present, he is working very hard to finish his MS thesis so that he will be able to invite his family for a double celebration — the LAS Awards Ceremony where he will receive the teaching award, and a separate celebration for completion of the requirements for his MS degree.

Eliel Receives Alumni Achievement Award

Ernest Eliel, Ph.D. '48 (Chemistry with Snyder) received an Alumni Achievement Award from the College of Liberal Arts and Sciences. According to Paul Bohn, Head of the Chemistry Department, "His contributions to stereochemistry are a stunning legacy to all who work in the molecular sciences." Eliel published the first comprehensive text on the subject, *The Stereochemistry of Carbon Compounds* in 1962 and co-authored a second text on *Conformational Analysis*. According to Professor Scott Denmark, a colleague, "These books served as bibles for three generations of students and practitioners."

Ernest Eliel

A member of the National Academy of Sciences, Eliel is the W.R. Keenan Professor of Chemistry Emeritus at the University of North Carolina at Chapel Hill. In 1996, he received the Priestley Medal, the highest honor of the ACS. His abilities as a gifted lecturer were recognized by the George C. Pimentel Award from the ACS Division of Chemical Education in 1995. Eliel was President of the ACS in 1993.

Jolls Receives National Catalyst Award

Kenneth R. Jolls, Ph.D. (Chemical Engineering with Hanratty) received a Responsible Care National Catalyst Award from the Chemical Manufacturers Association in 1996. Since 1970 Jolls has been on the faculty at Iowa State University. He considers himself principally a thermodynamicist with a specialty in scientific visualization in areas related to thermodynamics, stability, and phase equilibrium.

Kenneth Jolls

Jolls is the author of two software packages for teaching enhancement through computer graphics. He has won several awards for innovative teaching and for the development of computer software for instructional purposes. These include the Superior Engineering Teacher Award from the College of Engineering at Iowa State University and the Masters of Innovation II Competition Award from Zenith Data Systems Corporation.

As an avocation, Jolls is a part-time performing jazz musician and participates in a variety of musical events in the Ames area.

Sculpture at the new lab.

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