

School of Chemical Sciences

Spring 1990

#26

ALUMNI NEWS

University of Illinois
at Urbana-Champaign

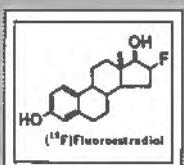
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Lycans Launch Faculty Fund

At the February Presidents Council dinner for alumni and friends, the Foundation announced the new School of Chemical Sciences Faculty Excellence Fund established by Dr. William and Mrs. Janet Lycan. With a gift of \$500,000 the Lycans have established an endowment that "pays homage to the late, world renown chemists, Dr. Roger Adams and Dr. Carl Shipp Marvel, who established the tradition of excellence in chemistry at the University of Illinois."

Income from the fund will be used primarily to supplement faculty salaries and to provide additional financial support to attract and retain faculty. This is particularly important at a time when the pool of truly outstanding scientists is shrinking and extraordinary efforts are needed to compete for those who can contribute to the tradition of excellence of the chemistry department at the University of Illinois.

Income from the endowment can also be used to provide fellowships to graduate students of faculty who are supported by the fund. Alternatively, the fund can be used to support lectures, seminars, symposia and other research related expenses which make chemical sciences at the University of Illinois a stimulating environment favored by outstanding faculty.

The Lycans are both graduates of the U. of I. and have been loyal friends of the university for many years. Bill Lycan received all three degrees from the U. of I., a B.S. in 1924, an M.S. in 1926 and a Ph.D. in 1929, all in chemistry. Janet Lycan received a B.S. in education in 1926 after two years of practice teaching at Uni Hi.

Bill Lycan began his professional career in the organics division of DuPont and then became director of research and executive director of research of the paint division of the Pittsburgh Plate Glass company. He devoted most of his professional career to Johnson & Johnson, which he served for 20 years, first as director of research, then as vice president and finally as vice chairman of Johnson



Janet and Bill Lycan

and Johnson International. His efforts helped the company grow to one of the ten largest pharmaceutical companies in the world, spending more than \$200 million a year on pharmaceutical research. Among his many honors and awards was the Gold Medal which he received in 1970 from the Society of Chemical Industry "for conspicuous service to applied chemistry."

The Lycans hope that their initial donation will stimulate others to contribute to this very important fund at the School of Chemical Sciences. The establishment of this fund is an appropriate capstone of the philanthropic career of the Lycans. The Lycans have been presidents council members and members of the U. of I. Foundation since the 70s and have hosted several meetings in the Florida region. In addition to their faithful support of chemical science funds, they have contributed generously to the U. of I. Advancement Fund, the Grants-In-Aid athletic scholarship program, and the library.

The School of Chemical Sciences hopes that a significant SCS Faculty Excellence Fund will contribute in countless ways to maintain the "Golden Age" of chemistry at Illinois. With first rate faculty, we can compete for outstanding graduate students and produce world class research for which chemical sciences at Illinois are renowned.

Carey Wins Luce Fellowship

Jannette Lazar Carey, who was awarded a Ph.D. in Biochemistry in 1983, is the first woman in a primary appointment, tenure track position in the chemistry department at Princeton University and a recipient of one of the first prestigious Clare Booth Luce fellowships. Only 8 women nationally, including 2 chemists, won the newly established awards, designed to provide financial assistance "at critical points of intervention . . . for women who are outstanding scholars (in the hard sciences and) on the verge of tenure track appointment." Fourteen schools were selected to nominate candidates. Princeton University, which had just hired Dr. Carey to its chemistry faculty as a key member of its new biostructural chemistry initiative, found a winner.

The Luce Fellowship provides substantial awards ranging from \$225,000 to \$430,000 to cover faculty salaries over a five year period. In addition, winners may request an allowance for research expenses including the usual equipment, supplies and travel. However, a novel feature of the program is that this allowance may also be used to support child care. "This is really 'critical intervention'", says Jannette, "I could have benefited from this as a student, though not many students have children; it's just too demanding." She thinks this aspect of the award is also important for establishing the precedent that childcare is a valid expenditure. "Hopefully, the precedent can be extended to students, too."

During her entire career as an undergraduate, graduate student, and postdoctoral fellow, Jannette was a single mother, raising a daughter who is herself a student now at City College of San Francisco. Combining child-rearing, without a supportive spouse or a second income, with a rigorous academic program that demanded single-minded devotion day and night, was an enormous task. "I wasn't the only one, though, so I had an instant support network in place among the other single mothers in graduate school when I arrived. It's a good thing, too! I owe a lot of my success to them and to many other friends here and everywhere we've lived." She still visits Urbana once or twice a year.

Dr. Carey, who originally came from Chicago, trained in physical biochemistry with Professors of Biochemistry Olke Uhlenbeck at the University of Illinois and Robert Baldwin at Stanford. She also worked with Charles Yanofsky, Professor of Biological Sciences at Stanford and with Jeff Gardner, Professor of Microbiology at the University of Illinois to learn how to apply genetic methods to her research problems. She credits these scientists with giving her a background that has both breadth and depth. In addition, she says, "I am fortunate to have worked with many scientists who were also exceptional human beings."

Dr. Carey's present research is on the relationship between structure and

function of biological macromolecules. She is particularly interested in proteins and nucleic acids, their individual structures and functions, and how they interact with each other. "This work is fundamental to our understanding of how gene expression is controlled." Her approaches to these problems include a wide range of techniques, from genetics and molecular biology to magnetic resonance and other spectroscopic methods. Her work is funded by grants from the N.I.H. and the N.S.F.

The new professor hopes that she can be an effective role model, especially because she can demonstrate to students that there is more than a single route to success. "At present, although many women are being trained in the sciences, they are underrepresented on faculties. Lack of role models is undoubtedly a contributing factor." She hopes that some of her students will be part of a more equitable gender distribution on faculties in the future.

She and her students (four women thus far) have just completed their first successful experiments in the lab, only three weeks after her arrival. "It was extremely important to me to get the work moving as quickly as possible, but this success rate is greater than I could have hoped for." To her professional colleagues who knew her during her graduate studies at Illinois, her recent success is no surprise. They are waiting for her next "first".



The Latest Chemistry Building and the First

With a total project cost of about \$70 million, the new Chemical/Life Sciences building will be the most expensive structure ever built on this campus. It may not be the largest because it will be roughly comparable in size with the Beckman Institute. Its 137,000 net assignable square feet of space (excluding utilities, restrooms etc.) will be divided approximately equally between chemical and life sciences. The new building will be more expensive than the Beckman Institute because it will contain more laboratory space.

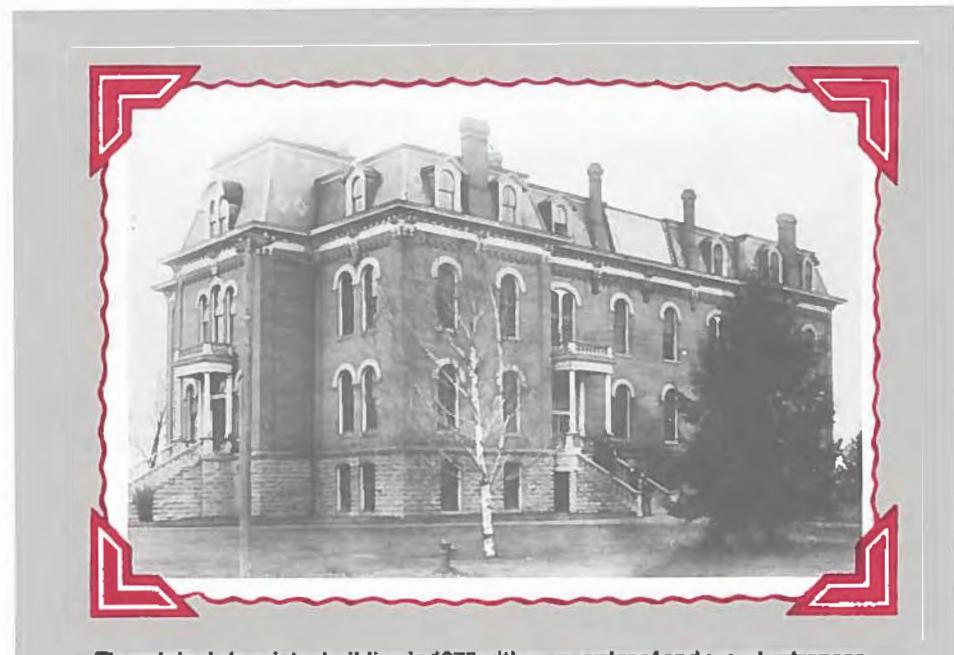
Compared with our first chemistry building, now called Harker Hall, the new Chemical/Life Sciences building will cost about 145 times as much but will be only about six times as large. The original chemistry building, just a stone's throw from Noyes Lab, was built in 1878 when the university was still known as Illinois Industrial College, and is now the oldest building on this campus.

As the contract for construction of the original building shows (see back of newsletter), the winning bid was for \$23,896, which is equivalent to \$477,920 in current dollars. The design by Professor Ricker of the department of architecture, and later, dean of the college of engineering, called for a building with 21,875 square feet of assignable space. According to Professor Winton Solberg, historian of the University of Illinois, "the building's size and facilities were superlative."

It is interesting that the latest, like the first chemistry building shared facilities with other disciplines. Our newest building will be shared with the life sciences whereas the first building contained several other units including a museum and the agricultural experiment station.

The funding details of the new Chemical/Life Sciences Building will be worked out in this year's legislative session. \$2.4 million was received last year for initial planning and \$65 million is being requested for further planning and construction. Today, the building is still in the "conceptual" stage. By the time the next newsletter goes to press, a visual sketch may be available.

The intricacies of planning involves not merely the new building and its complex infrastructure but also the entire chemical sciences complex on this campus. When the first chemistry building was built, it housed all of chemistry and several other



The original chemistry building in 1878 with mansard roof and grand entrances above ground level. Called Harker Hall, it is currently the oldest building on campus.

disciplines as well. Today, the chemical sciences are housed in three entire buildings and parts of others. Except for Harker Hall, which now contains the entomology department, we have not vacated any chemistry building we have ever acquired.

According to current plans, our half of the new building will be devoted primarily to graduate research. Research labs now in Noyes will migrate to the new quarters and Noyes will become home to an expanded library, and to additional instructional space and expanded support facilities.

Because of the complexity of the project, it needs a long time horizon. If the schedule moves through the stages as anticipated, a year and a half will be devoted to the planning and bidding process. Construction can be expected to consume another two and a half years so that we anticipate occupancy in mid 1994. With careful spadework at the front end, we hope that the final structure will not meet the disaster that struck Harker Hall. The chemistry archives indicate that

In the early morning of August 15, 1896, the laboratory was struck by lightning. The entire upper floor was burned. This included the Pharmacy, the Photographic rooms, the

Museum and the laboratory of the Agricultural Experiment Station. On the second floor everything north of the central store room was burned. This included Dr. Palmer's private laboratory, with the result that many valuable papers and records were lost. The large steel tank near the roof had its supports burned away and it fell through to the basement, completely wrecking the two store rooms in its path. A new roof of different pattern was at once put on, but only such repairs and board partitions were provided as would make the interior usable temporarily, it being confidently expected that at the coming session of the legislature funds would be appropriated for making good the loss, with a new and larger building which the great increase of students made imperative. The outcome was \$5,000 appropriated to replace apparatus lost in the fire.

The expected new building did not materialize as hoped. The legislature did not appropriate funds for a new chemistry building until 1901 when Noyes Lab was begun. The \$100,000 appropriation of 1901 was so inadequate that it was clear from the beginning the new building would not meet the needs of the department for 25 years, as the legislature had hoped. Furthermore, because of the meagerness of the appropriation "the style of construction . . . entailed considerable risk of fire."

Illinois Inventors

A Powerful Diagnostic Tool for Breast Cancer



John Katzenellenbogen

A safe, effective treatment for any type of cancer is the goal of many researchers. Professor Katzenellenbogen of the U. of I. chemistry department is bringing that dream closer.

For the last 12 years Dr. K., as he is known to his colleagues, has been collaborating with a group led by Professor Michael J. Welch of Washington University School of Medicine in a search for a chemical probe to help differentiate breast cancers that are likely to respond to estrogen therapy from those that are not. To distinguish these cases, the first step was to identify those cancers that are rich in estrogen receptors. In the past, this diagnosis involved invasive measures including surgical biopsy, frequently with less than definitive results.

In their search for a better method, Dr. K. and his students have been looking for a probe that would have a high affinity for and bind specifically to estrogen receptors and that would emit radiation to produce clear images for medical diagnosis.

Since 1984, Dr. K. has been working with an estrogen derivative known as 18F-Fluoroestradiol, a compound that can be used with PET (Positron Emission Tomography) to indicate the presence and quantity of estrogen receptors in breast tumors. The search for a chemical that would meet all essential characteristics simultaneously was long and difficult.

For several years prior, Dr. K. had been working with estrogens labeled with isotopes of iodine and bromine. Although these halogens were easier to work with chemically than fluorine, they are large and provoke non-specific binding. Also, they produce single photons rather than positrons and therefore result in less usable pictures. However, the earlier work had helped to identify the necessary characteristics of the compound they were seeking. A diagram of the 18F-Fluoroestradiol molecule is shown below.

Although the compound is showing considerable promise for diagnosis of breast cancer, with high correlations ($r = 0.96$) with the results of estrogen receptor concentrations measured *in vitro* after excision, the procedure does not constitute a cure for breast cancer, nor is it appropriate for mass screenings. However, it is very useful for cases where mammography or needle biopsy has confirmed the existence of a breast tumor. The physician then needs to know whether the tumor is likely to respond to antiestrogen therapy and whether the tumor has spread to axillary lymph nodes.

Unfortunately, even if the diagnostic procedure confirms that a tumor is rich in estrogen receptors, only about half the cases respond to hormone therapy. However, the procedure can prevent the loss of valuable time by eliminating the use of hormone therapy in cases where patients test negative and are very unlikely to benefit. By giving the physician diagnostic information that can steer him or her away from a fruitless procedure, the patient can begin more promising types of treatment sooner, which is more likely to produce a positive outcome.

Dr. K. is already looking ahead with numerous plans for related projects. One area on which he has been working is to produce a substance that will work equally well to identify progesterone receptors. Such a diagnostic probe might give a yet more definitive evaluation of the effectiveness of hormone therapy in breast cancer than 18F-Fluoroestradiol.

He is working on an androgen probe for prostate cancers as well. In prostate cancer cases the imaging of steroid receptors can help the physician in

staging the disease. If the cancer is still retained within the tissue capsule, surgery can effectively remove it, whereas surgery has little benefit when the cancer has spread outside the prostate.

Another possible avenue of research is in the field of Alzheimer's disease. Dr. K. hopes to use similar techniques to image corticosteroid receptors in a region of the brain called the hippocampus. This region is particularly rich in corticosteroid receptors and is very active in regulating the stress reserves of neuronal tissues so that the area becomes desensitized to the action of cortisol on these receptors. This could aggravate the progress of degenerative disorders like Alzheimer's disease.

As his work has progressed, Dr. K.'s research has received increasing attention from within and outside the University of Illinois. He received a Guggenheim Fellowship in 1977, a Sloan Foundation Fellowship in 1974-76 and a Camille and Henry Dreyfus Teacher-Scholar award for 1974-1979.

In 1987 the National Institutes of Health selected his work for MERIT status. With MERIT status, which is awarded to very few, research funding can be renewed for 10 years with minimal documentation. His funding agency obviously considers Dr. K.'s time too precious to be spent writing lengthy grant applications when his record of productivity speaks for itself.

Finally, in 1988, Dr. K. (and his wife) received the university's highest awards when they were chosen to be University Scholars.

Dr. K. appreciates the recognition he has received, but his real enthusiasm is reserved for his work. He is delighted with his recent success and looks forward to making many more contributions to the field of chemistry and to the diagnosis and treatment of disease.

[¹⁸F] Fluoroestradiol

Drickamer Receives Medal



Drickamer accepts Medal of Science from President Bush at the White House.

Last fall, Professor Harry G. Drickamer received the Medal of Science at the White House. The announcement praised Drickamer as a pioneer in the field of pressure tuning spectroscopy "which has contributed greatly to the world's understanding of modern science, including chemistry, physics, biochemistry, geology and other disciplines."

Professor Drickamer who has held joint appointments in the departments of chemical engineering, chemistry, physics, and in the Institute for Advanced Study, retired last year after more than 40 years of service. The National Medal of Science caps an illustrious career recognized with innumerable honors including the Oliver Buckley Prize in Solid State Physics (1963), the Irving Langmuir Award in Chemical Physics (1974), the first P.W. Bridgman Award (1977), the Michelson-Morley Award (1978), the Scott Award (1984), the Peter Debye Award in Physical Chemistry (1988) and the Robert A. Welch Award (1988). He is a member of the National Academy of Sciences, the National Academy of Engineering and the American Philosophical Society.

Other Medal of Science winners from the U. of I. chemistry department are Paul C. Lauterbur in 1987 and Professor Herbert S. Gutowsky in 1977. Professor William C. Rose, emeritus professor at the time of the award, was one of the very early winners, receiving the medal in 1966. Roger Adams, also emeritus professor at the time he received it, won the award in 1964, two years after the medal was first given.

Among former chemistry faculty who won the National Medal of Science are Professor Rudolph A. Marcus, now at the California Institute of Technology, who won the award in 1989. Professor E.J. Corey, currently at Harvard University, won the award last year and Professor Carl S. Marvel, who recently passed away, won the award in 1986.

Honors

Two Receive Alumni Professorships



Lauffenburger



McHugh

Two eminent members of the chemical engineering department have been named Alumni Professors. Dr. Douglas A. Lauffenburger will be joining the U. of I. faculty next fall, after having taught at the University of Pennsylvania since 1979 and chaired that department since 1987. Dr. Lauffenburger is a pioneer in the emerging field of cellular bioengineering.

Dr. Anthony McHugh who came to Illinois in 1979 after teaching at Lehigh University for eight years, is the other new Alumni Professor. He is internationally recognized for his research in polymer materials science and engineering.

The Alumni Professorships resulted from a campaign initiated in 1984 by the Resource Development Committee of the department of chemical engineering. Dr. Keith McHenry (B.S.'51), Senior Vice President of Amoco Corporation and Chairman of the Resource Development Committee at the time this campaign was launched, said, "Alumni Professorships provide a way for our department to attract and hold top faculty in the face of dwindling federal and state support and stiff competition from other schools."

BFGoodrich Company Honors Professor Bailar

At last fall's Inventor Recognition Dinner the "John C. Bailar, Jr. Undergraduate Research Scholarship in Chemistry Sponsored by The BFGoodrich Company" was established in the chemistry department. The company made the gift to honor Professor Bailar for his distinguished career at the U. of I. and for his many years of service as a consultant for the BFGoodrich Company. The scholarship will be awarded to an outstanding senior in chemistry who will be performing undergraduate research during his or her senior year.

Hanratty Named First Westwater Professor

Professor Thomas J. Hanratty, professor of chemical engineering, has been appointed to the James W. Westwater Professorship, the first endowed professorship in the history of the department.



Thomas Hanratty

Professor Hanratty, who has been on the U. of I. faculty since 1953, is a world leader in experimental and theoretical research in turbulence and multi-phase flows. He has pioneered in the detection and description of fluid motion close to a solid surface as well as at gas-liquid interfaces.

Among his many awards and honors are receipt of the Curtis W. McGraw Award of the ASEE, the William H. Walker Award of the AIChE, the Professional Progress Award, and the Senior Research Award of the ASEE.

Plans for the Westwater Professorship were initiated by John Widdowson (B.S.'41), a classmate and friend of James Westwater, and carried out with the help of other members of the class of '41. Dr. Westwater, who was a member of the faculty for 30 years and head of the department for 18 years, is an internationally renowned pioneer in the use of high speed photography. His research has centered on heat transfer accompanying a phase change. His awards include the Max Jakob Award from AIChE and ASME, the William H. Walker Award from AIChE and the Vincent Bendix Award from ASEE.



John C. Bailar, Jr. with Lawrence Dahl, this year's Bailar lecturer, receiving the John C. Bailar, Jr. medal.

Machine Shop Wins High Praise

According to Professor McHugh, current faculty advisor, "The machine shop, in my view, is one of the most important facilities of the School of Chemical Sciences, and in some ways, certainly for the experimentalists, perhaps the most important. For myself, it was an important element in my decision to come to the U. of I."

The shop, located in the basement of Roger Adams Laboratory, builds an unusually wide range of equipment. Its products include the very large, such as immense wavy walls and flow loops to study fluid turbulence and the tiny, irregularly shaped dies with channels measured in tenths of millimeters to optically measure diffusion in polymeric liquids.

The shop can also build devices for operating under high vacuum conditions with pressures of 10^{-11} torr and systems which produce very high pressures of 10^7 torr, the latter used in the pioneering work of Professor Harry G. Drickamer, who recently received the National Medal of Science for his scientific contributions (see page 5).

Professor Scheeline, who is himself a heavy user of the shop, pointed out, "If you've got an idea, the machine shop can build it, even if it's never been made before. In terms of hardware instrumentation, their capability puts us in the forefront of measurement science."



At left Bill Knight, shop supervisor, works with the electrical discharge machine. Above, Robert Lin, graduate student in chemical engineering, manipulates a specialized vacuum chamber built by the machine shop.

Staffing and Equipment

Since the recent retirement of Elmer Lash, supervisor since 1973, Bill Knight, one of the three instrument makers, has taken charge. Two senior lab mechanics make up the current staff of five. Salaries are contributed by the school so that charges to faculty are minimal, which facilitates research requiring sophisticated instrumentation.

The lathes and milling machines were new when the Roger Adams Laboratory was new, but they are showing signs of obsolescence. The numerical readout panels provide output information but do not "control" in the sense of accepting input. The newcomer among the machin-

ery is an electric discharge machine which uses electrical discharge for cutting metal and can therefore cut shapes that are unusual, and irregular and as small as $1/2000$ inch thick.

The change to computer controlled equipment is inevitable and will occur as funds become available. With the new computer aided design (CAD) techniques it is expected that the machine shop will become yet more efficient because design parameters can be planned in greater detail and then fed directly from the design computer to the one controlling the machine that fabricates the device.



From the very big to the very small . . .

At left is a dinner-sized rectangular channel of stainless steel, consisting of four segments of 70 inches each, built by the shop for Professor Hanratty's studies of fluid turbulence.

The figure above is a mask for a slide created with the electronic discharge machine. The resolution is so fine that the spacers are only $8/1000$ " thick.



Mike Westjohn working with student.

The Student Shop

On the first floor of RAL is the student shop, presided over by Mike Westjohn, one of the lab mechanics. He offers a 1-2 week orientation course with hands-on instruction to introduce students to the machinery and its capabilities. The course is not meant to produce machinists but helps students in the planning and design of equipment used for their research. Alex Scheeline, who took an equivalent course as a graduate student reports, "It was an invaluable part of my total training."

Most graduate students in physical and analytical chemistry and chemical engineering take the orientation course as well as undergraduate students doing a research project that involves design and building of specialized equipment. The teaching component of the machine shop is parallel to that of the NMR laboratory and demonstrates the School's commitment to producing scientists with a wide range of skills.

The teaching in the student shop and the efficient, high quality service of the entire machine shop make this facility as much a cornerstone of the excellent reputation of the School as any other program that the School offers. According to the faculty, our machine shop is at least as good as any other in this or any other university and probably better than most.

Alumna's Science Fiction Story Set at U. of I. in 2009 AD



Sandra Miesel, MS in biochemistry '65, was described by Professor Yankwich as exemplifying the possibilities of "chemistry as a liberal art." In her post chemistry years, she earned a master's degree in history at the U. of I. and developed a writing career.

SHAMAN, (Baen Books, 1989) is a charming story of Ria, a young research librarian at the U. of I. in the year 2009, who develops the powers of legendary shamans through her friendship with Kara, a shaman mentor, and an otter-like creature named Lute from the 27th century.

Alumni will recognize many historical landmarks which appear in the story, including Noyes Lab, the Illini Union, the Alma Mater, Altgeld Hall, Wright and Green Streets, the Krannert Center and University High School. Miesel pokes fun at the U. of I. bureaucracy and lets a rioter burn down the Illini Union, in revenge, she says, for the outrageous cafeteria prices she paid as a student, i.e. 16 cents for 4 brussel sprouts.

Miesel finds that writing is both more enjoyable and safer than chemistry. As a chemist, she remembers, "I kept having lab accidents such as making holes in my clothes or catching my hair in stirring motors."

Ms. Miesel has enjoyed recognition for her writing, having been nominated for the John W. Campbell Award as the best new science fiction writer in 1983. She reports that her scientific education has left a positive residue. As she nears the end of her current Ph.D. studies in medieval history at Indiana University, she says that "reading medieval manuscripts isn't so different from interpreting x-ray crystallography data." Her scientific education has found a unique application.

Books

Books are Special Gifts

The chemistry library and its many users have received two special donations. Mr. Eugene Ringwald (B.S. 1941) one of the contributors of the third edition of the *"Polymer Handbook"* John Wiley & Sons, 1989, has given us a copy with a dedication in memory of Professor Speed Marvel. The dedication reads, in part,

He (Carl S. Marvel) taught me (class of '41) the chemistry of polymers as a special field of organic chemistry. This educational background molded my professional career of 40 years as a research chemist with Monsanto Chemical Co. The work of myself and my associates contributed to the development and utilization of polymers and their processes, especially those dealing with polyester, nylon, acrylics and elastomers. Today these polymers in various forms (i.e. fibers, films, etc.) are used extensively throughout the world.

I feel a deep sense of gratitude toward Professor Marvel for guiding my youthful footsteps into the field of polymers.

"Profiles of Eminent American Chemists" (Litarvan: Sidney, Australia, 1988) was given to us by Dr. Charles H. (Hap) Fisher (Ph.D. 1932), co-author with Raymond B. Seymour, in memory of the late Professor R.C. Fuson. The book includes biographical essays of all recipients of the American Institute of Chemists Gold Medal, first awarded in 1926, and recipients of the annual Chemical Pioneer Award begun 1966. Whereas the Gold Medal is given for "service to the science of chemistry or the profession of chemist or chemical engineer in the United States," the latter is also given for applied contributions and for chemical technology.

The latter group includes not just chemists but also financiers and philanthropists, a lawyer and a corporation president who have made valuable contributions to the chemical industry. The group also includes many renown chemists. The first biography is of Roger Adams and the list includes 18 persons who were associated with the U. of I. plus one who happened to be born in Champaign, Illinois.

Changes



Gary Schuster



Larry Faulkner

Schuster will head Chemistry Department

On July 1, Professor Gary Schuster will return from a sabbatical leave at the IBM Almaden Research Labs in San Jose, California, to take up the challenges of leading the U. of I. chemistry department. He feels honored to have been selected by his colleagues but recognizes that he will have a full agenda when he assumes his new post.

Maintaining excellence will be the challenge facing our chemistry department. Dealing with recent changes in

federal funding for basic research and the continued recruitment of outstanding graduate students are two of the tasks that the department will face in the near future. "These challenges will require the cooperation and hard work of all my colleagues."

He is pleased that his tenure in the headship will coincide with the planning and construction of a new building but, he says, "It will require considerable coordination to develop its full potential."

"I am fortunate", he says, "to follow the outstanding example of Larry Faulkner. Basically, I plan to continue the programs and policies he laid out during his years as head. I look forward to working on the challenges that I foresee and those that are yet beyond the horizon."

Faulkner Appointed Dean of LAS

After having tried out the deanship for a couple of months as acting dean, Larry Faulkner has agreed to remain permanently. At the School of Chemical Sciences we miss him because he was an outstanding head of chemistry and will be a hard act to follow.

As head of the largest college on the campus, containing 55 departments and almost half of all the university's undergraduate, graduate students and faculty, he has an enormous domain and the opportunity to shape policies that will affect the entire campus. One of his foremost priorities is "to improve the quality of each undergraduate's education by strengthening essential skills and by broadening the base on which the education of a lifetime is to be built." This is an enormous task that will require extensive evaluation of the entire undergraduate curriculum and a shifting of resources to make the necessary learning experiences available.

In addition, Faulkner is very concerned about the erosion of faculty salaries at a time when talented faculty will become a shrinking labor pool, and even more about the level of stipends of teaching assistants. As he points out, "the level of stipends affects the quality of the graduate students attracted and because those students are essential to both research and teaching, they affect the quality and reputation of the university itself."

To those who have heard him define the challenges ahead, it is already clear that our loss in chemistry is a gain for the greater university. We wish him well and hope that he will be able to solve the problems that he has articulated so clearly.

KEEP IN TOUCH

Return to: Ellen Handler, Editor
SCS Alumni Newsletter
103 Noyes Laboratory
505 S. Mathews
Urbana, IL 61801

If you know someone who would like the newsletter and is not receiving it, please send address.

Name _____ Degree & Date _____ Major _____

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Your news (Please include newspaper clippings, photos, extra sheets, etc.)

Faculty Honors

Kenneth L. Rinehart, Professor of Chemistry, has been named a U. of I. University Scholar, the highest award given by the University.

Stanley G. Smith, Professor of Chemistry, has been named an LAS Jubilee Professor in recognition of his outstanding achievement in undergraduate education and in research and scholarship. Professor Smith also presented the Annual Dean Lecture at the 31st International Conference of the Association for the Development of Computer-based Instructional Systems(ADCIS). Selection as the Dean Lecturer is one of the highest honors bestowed by ADCIS.

Andrew J. Gellman, Professor of Chemistry, won a Fellowship in Science and Engineering from the David and Lucile Packard Foundation. The award

provides \$100,000 annually in research support for a period of five years.

Steven C. Zimmerman, Professor of Chemistry, received a Camille and Henry Dreyfus Teacher-Scholar Award for 1989. He was also awarded a Lilly grant by Eli Lilly and Company.

James W. Westwater, Professor of Chemical Engineering, won the 1989 Heat Transfer and Energy Conversion Division Award of the American Institute of Chemical Engineers.

Loretta L. Jones, Associate Director of the General Chemistry Program, was elected a Fellow of the American Association for the Advancement of Science.

John R. Shapley and Scott E. Denmark, Professors of Chemistry, both received a Humboldt Research Award for Senior U.S. Scientists.

Paul C. Lauterbur, Professor of Chemistry and Medical Information Science has received the 1990 NEMA

Medical Technology Leadership Award, given by the Diagnostic Imaging and Therapy Systems Division of the National Electrical Manufacturers Association. Professor Lauterbur also received an honorary Doctor of Science Degree from the State University of New York.

Richard C. Alkire, Professor and Head of the Chemical Engineering Department, was selected the 1990 William N. Lacey Lecturer in Chemical Engineering, by the California Institute of Technology.

Andrzej Wiekowski, Professor of Chemistry, was invited by the National Science Council of the ROC to present a lecture series at the Institute of Nuclear Engineering of National Tsinghua University.

Harry G. Drickamer, Professor of Chemical Engineering, won an award in the Sustained Outstanding Research in Materials Chemistry category in the Department of Energy's 1989 Materials Sciences Research Competition.

at Eli Lilly and Co. and former president of the Indiana Academy of Science.

David Elliott Chubin, B.S. '85 (Chemistry) died in the Seychelles Archipelago in summer, 1989.

Dr. Betty Chiang (Chuang), M.S. '67 (Chemistry) died on October 18, 1989 in Los Gatos, California.

Leallyn B. Clapp, Ph.D. '41 (Chemistry with Bailar) died on November 28, 1988. He was Professor of Chemistry at Brown University where he was known as an outstanding teacher. In 1973 he was awarded the Manufacturing Chemists Award in Chemical Education and in 1974 he received the ACS award in Chemical Education. He received honorary doctoral degrees from Rhode Island College and from Eastern Illinois University.

Gerald J. Cox, Ph.D. '25 (Chemistry with Rose) was a fellow of the Mellon Institute from 1929-1941 and later professor of dental research at the University of Pittsburgh. He was the recipient of the H. Trendley Dean Award of the International Association of Dental Research in 1977.

Douglas V. Frost, A.B. '33 (Chemistry) died on August 8, 1989. He is credited with developing the vitamin role of niacin and the first intravenous fibrin hydrolysate, vitamin K source for poultry.

In Memoriam

Professor Phipps Dies at 94

Professor Thomas E. Phipps, who was a member of the chemistry department from 1921 until his retirement in 1964, died on March 12, 1990. He was known as a meticulous experimentalist, "the last of the glass blowing physical chemists," according to his son.



Thomas Phipps

His most important scientific contribution was the discovery of periodic deviations from the Schottky Line which describes thermionic emissions and had been assumed to be linear. The observed deviations have been interpreted as a quantum mechanical effect but the phenomenon has eluded satisfactory theoretical explanation to the present time. In the 1920s Professor Phipps and his graduate students were the first to measure nuclear magnetic moments of hydrogen and oxygen by Stern-Gerlach techniques.

Professor Phipps completed his undergraduate work at the University of Texas at Austin and received his Ph.D. from the University of California at Berkeley in 1921. In 1929 Dr. Phipps won a Guggenheim Fellowship and worked for a year in Hamburg, Germany, with Professor Otto Stern. In 1944-45 he contributed to the war effort by working on the Manhattan Project at the University of Chicago.

William J. Bailey, Ph.D. '46 (Chemistry with Marvel) died on December 17, 1989. He was known as a polymer chemist and is credited with important discoveries in the areas of expanding polymers and biodegradable plastics.

Among his many awards were the Outstanding Achievement Award from the University of Minnesota in 1976 and in 1977 the ACS Award in Polymer Chemistry. In 1985 he won the ACS Polymer Division's Distinguished Polymer Scientist Award and in 1986 he received the ACS Award in Applied Polymer Science. He also received the Chemical Society of Washington's Hillebrand Prize in 1984 and the ACS Division of Professional Relations' Henry Hill Award in 1988.

Otto K. Behrens, Ph.D. '35 (Chemistry with Rose) died on December 19, 1989. He was former associate director of research

Van Russell Gertner, Ph.D. '48 (Chemistry with Fuson) died on November 26, 1989. He had previously retired from Monsanto.

Charles Bolles Galc, B.S. '28 (Chemical Engineering) died on September 18, 1989. He had been with the Standard Oil Company in Chicago.

Gary W. Griffin, Ph.D. '57 (Chemistry with Fuson) died on October 8, 1989. At the time of his death, he was Boyd Professor of Chemistry, University of New Orleans. His major research interests included chemiluminescence, singlet oxygen chemistry, and chemical carcinogenesis but were centered around carbenes, cubanes, and small-ring chemistry explored photochemically. He was codesigner of the Rayonet Chamber Reactor, among the most widely used light sources presently available.

Robert M. Hill, Ph.D. '24 (Biochemistry with Lewis) spent most of his professional career at the University of Colorado School of Medicine until his retirement in 1963.

Dr. George Lesher, B.S. '50 (Chemistry) died in a canoeing accident. He had worked for 38 years for Sterling Research Group and in 1982 was selected the first fellow of the Sterling-Winthrop Research Institute.

Sidney Melamed, Ph.D. '44 (Chemistry with Fuson) died on December 9, 1987.

Carol Schuetz Promislow, B.S. '52 (Chemistry) died on December 21, 1988. She had been a biochemist with Queens University in Ontario, Canada, and with Mercy Hospital.

William H. Rieger, Ph.D. '41 (Chemistry with Marvel) worked for 39 years at Reilly Industries, Inc., retiring in 1980 as director of research. He was an expert on the chemistry of pyridine compounds and catalytic hydrogenation.

Charles V. Smith, M.S. '34 (Chemistry) died on October 5, 1988.

John H. Wolfe, Ph.D. '60 (Chemistry with Hummel) died on February 27, 1989. He was one of the pioneers of solar wind research and was part of the "first wave" of scientists in what many now see as the golden age of space research. He was awarded the NASA medal for scientific achievement in 1971 and in 1974 received the Space Science Award of the American Institute of Aeronautics and Astronautics.

Alum News

Symposium Honors Sinfelt

A week long symposium was held at the University of Utah on "Advances in Catalytic Chemistry IV" in honor of **John H. Sinfelt, Ph.D. '54** (Chemical Engineering with Drickamer). Dr. Sinfelt is senior scientific advisor at EXXON Research and Engineering Company. He received the National Medal of Science in 1980 and an honorary doctorate from the University of Illinois in 1981. He is a member of the National Academy of Science, the AAAS, and the National Academy of Engineering.

Alums Win National ACS Awards

Dr. John E. Franz, B.S. '51 (Chemistry) who is a Monsanto Distinguished Science Fellow, has won the 1990 ACS Perkin Medal. The medal is given for "outstanding contributions to research and development of applied chemistry." Dr. Franz discovered glyphosate, a broad-spectrum herbicide that is highly effective against both annual and perennial weeds but essentially nontoxic to mammals, birds, fish, insects, and most other bacteria.

Gary M. Hieftje, Ph.D. '69 (Chemistry with Malmstadt) won the 1989 Award in Spectrochemical Analysis from the Analytical Chemistry Division of the ACS. Professor Hieftje, Distinguished Professor of Chemistry at Indiana University, is president-elect of the Society for Applied Spectroscopy.

Evan C. Horning, Ph.D. '40 (Chemistry with Fuson) will share the 1990 Frank H. Field and Joe L. Franklin Award for Outstanding Achievement in Mass Spectrometry with his wife, **Marjorie G. Horning**. Dr. Horning is professor of Chemistry at Baylor College of Medicine and adjunct professor of biochemistry at Rice University. He is also director of Baylor's Institute for Lipid Research.

J. Michael White, Ph.D. '66 (Chemistry with Kuppermann and Yankwich) has won the 1989 ACS Award in Colloid or Surface Chemistry. Dr. White is the Norman Hackerman Professor of Chemistry at the University of Texas at Austin. For the past 20 years "he has played a major role in the development of modern surface science and has pioneered its application to a host of surface chemical problems."

The Classes

'30 C. Roland Eddy, Ph.D. '38 (Chemistry with Rodebusch) received a certificate from the Philadelphia ACS section to recognize his 50 years of service to the society. Dr. Eddy had taught at the U. of I. for three years early in his career.

'40 Albert S. Humphrey, B.S. '46 (Chemical Engineering), chairman of Business Planning and Development in London, England, was elected director of finance for Long Life Herb Products, Inc. of Basking Ridge, New Jersey, and director of Visual Enterprises Ltd. of London, England.

Eugene L. Ringwald, B.S. '41 (Chemistry) contributed a section to the 3rd edition of the *Polymer Handbook*, edited by U. Brandrup & E.H. Immergut, Wiley & Sons, 1989. Since he retired from the Monsanto Company he has been a consultant on man-made fibers.

Odette L. Shotwell, Ph.D. '48 (Chemistry with Frank) has retired from the Agricultural Research Service. She is best known for her research on aflatoxin and other fungal toxins in crops. In 1980 she led a research team that won the Distinguished Service Award, the USDA's highest employee award.

Carl Weatherbee, M.S. '46 (Chemistry) was honored by Millikin University by naming after him the computer center in Scovill Science Hall. He was regarded as an outstanding teacher and retired from Millikin after 30 years of service.

'50 Peter Arvedson, B.S. '59 (Chemistry) is currently interim pastor at Grace Episcopal Church in Lockport, New York. Prior to his current appointment, he was rector of St. Andrew's Episcopal Church in Madison, Wisconsin.

Robert L. Bohon, Ph.D. '50 (Chemistry with Rodebusch) retired as technical director of the 3M Corporate Analytical and Properties Research Lab.

Edgar S. Peck, M.S. '58 (Chemistry) has been appointed Assistant Resource Manager for Defense Systems at the Lawrence Livermore National Laboratory.

John P. Schaefer, Ph.D. '58 (Chemistry with Corey) has become chairman of Tucson Electric Power Co. following a series of events that were featured in several financial news stories.

James Winefordner, Ph.D. '58 (Chemistry with Malmstadt) won the Applied Spectroscopy Medal from the New York Section of the Eastern Analytical Symposium. He is professor of chemistry at the University of Florida. In addition to getting his B.S., M.S. and Ph.D. degree from the U. of I., he also completed a year of postdoctoral research at this university.

'60 **Clifford H. Cox**, Ph.D. '65 (Chemistry with Snyder) has accepted appointment as a visiting assistant professor at the Department of Medicinal Chemistry at Purdue University.

James E. Dunn, M.S. '61 (Chemistry) has been made director of the Innovation and Development Center of Halstead Industries in Greensboro, North Carolina. Halstead is a manufacturer of plastics, rubber and copper products.

Douglas H. Dybvig, Ph.D. '61 (Chemistry with Curtin) is director of the graphic research laboratory and of the I & IT Japan sector laboratory of 3M in St. Paul. He has recently returned from an overseas assignment as managing director Minnesota 3M Research Ltd., in Harlow, England.

Wayne Franzen, B.S. '66 (Chemistry) has been appointed regional manager with Ciba-Geigy.

Charles A. Garber, B.S. '63 (Chemical Engineering) is president of Structure Probe, Inc. in West Chester, Pennsylvania. His firm is an independent testing and analytical laboratory, specializing in electron microscopy and surface analysis. He has been selected to serve as national tour speaker for the ACS in 1990.

Ronald Lambert, Ph.D. '67 (Chemistry with Leonard) has become Vice President of Engineering R/D for the AMPEX Corporation in Opelika, Alabama.

Craig Plassmeyer, B.S. '67 (Chemistry) has accepted the position as director of audit, security and compliance for a \$25 billion bank in southern California. Mr. Plassmeyer received his MBA in '69 from the U. of I. and his CPA in 1981.

Michael R. Rosenthal, Ph.D. (Chemistry with Drago) has moved to Southwestern University at Georgetown, Texas, as provost and dean of the faculty. Prior to his current position he had been vice president for academic affairs at St. Mary's College of Maryland.

T. Gordon Scott, Ph.D. '69 (Chemistry with Leonard) has recently been appointed as head of the chemistry program at Union College of Kentucky.

'70 **Mark A. Ackerman**, B.S. '78 (Chemical Engineering) has been promoted to manufacturing manager of telene with BFGoodrich Company.

Professor Panos Argyrakis, M.S. '74 (Chemistry) has been promoted to associate professor in the physics department of the University of Thessaloniki in Greece. He received his Ph.D. from the U. of Michigan and is spending his current sabbatical year with IBM (scientific engineering computations) in Kingston, New York.

Bradley Glorvigen, Ph.D. '74 (Chemistry with Curtin) is completing his third year as chairman of the chemistry department of the College of St. Thomas in St. Paul, Minnesota.

Dr. Thomas Ingolia, B.S. '74 (Chemistry) has been appointed manager of pharmaceutical strategic planning for Eli Lilly & Company.

Patricia A. Michael, B.S. '75 (Chemical Engineering) is a medical applications analyst at Rex Hospital in Raleigh, North Carolina.

Mark Mugerditchian, B.S. '79 (Chemical Engineering) has accepted a position as Director of Project and Process Engineering at LyphoMed in Melrose Park, Illinois.

Keith E. Reese, B.S. '79 (Chemical Engineering) has been named manufacturing manager of the first sub-micron semiconductor process facility of the Intel Corporation in Albuquerque, New Mexico.

Sheldon A. Schaffer, Ph.D. '70 (Chemistry with Leonard) has become Vice President of Pharmaceutical Development for CHOLESTECH in Hayward, California.

Gyanendra Singh, M.S. '70 (Chemical Engineering) has been appointed manager of management systems, Japan Division of the Proctor & Gamble Company.

Steven L. Suib, Ph.D. '79 (Chemistry with Stucky) was promoted to full professor in the department of chemistry at the University of Connecticut.

'80 **Michael K. Antenore**, B.S. '83 (Chemistry) has been promoted to area sales manager for Southern California by the NALCO Chemical Company.

Linda Cioffi, Ph.D. '87 (Biochemistry with Conrad) has accepted a position as research scientist in the molecular biology division of DNX in Athens, Ohio.

John Finn, Ph.D. '82 (Chemistry with Pirkle) has received the Scientific Achievement Award from American Cyanamid Company's Agricultural Research Division. Dr. Finn has used a mechanism-based approach to discover a new series of imidazolinone herbicides with short-term residual characteristics.

Greg George, B.S. '82 (Chemistry) has joined Armour Pharmaceutical Company in Kankakee, Illinois, as a protein chemist in the synthetic peptide division.

Donald E. Govoni, B.S. '87 (Chemistry) received an Outstanding Chemistry Teaching Assistant Award from the University of Wisconsin at Madison.

Dr. Ellen Heininger, M.S. '84 (Chemistry) is doing postdoctoral research in molecular biology of insect host plant resistance at Penn State University. She completed a Ph.D. in entomology at UIUC in '89 and says, "Miss Urbana already."

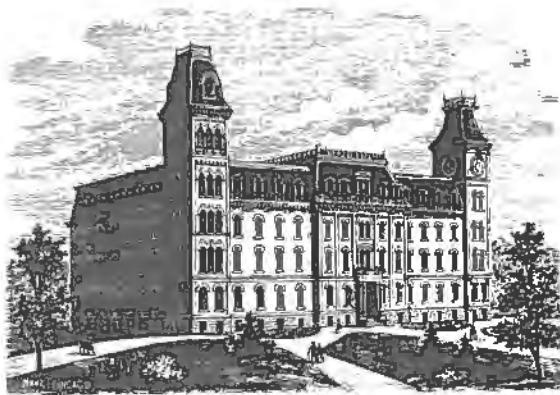
Scott G. Hoffert, B.S. '88 (Chemistry) has accepted a new position with Rollins Environmental Services Inc. as technical sales representative for the midwest region. He lives in Carol Stream, Illinois. He writes, "I would like to say 'Hello' to all my AXE friends. Hi, you weenies."

Jonathan D. Lee, B.S. '87 (Chemistry) has been appointed lab supervisor of the AIDS Clinic at the University of California in San Francisco.

R. Scott Meece, B.S. '83 (Chemical Engineering) has accepted a position as patent development engineer at Phillips Petroleum Company in Bartlesville, Oklahoma. After graduating from the U. of I. he completed an M.S. in chemical engineering at Wayne State University and is currently working on a law degree.

Kenneth P. Moder, Ph.D. '81 (Chemistry with Leonard) was promoted to research scientist at the Eli Lilly and Company Tippecanoe Labs.

Brenda R. Shaw, Ph.D. '83 (Chemistry with Haught) was promoted to associate professor in the chemistry department of the University of Connecticut.



Illinois Industrial University.

Founded by the State and Endowed by Grant of Public Lands.

Tuition in College Classes Free.

Calendar for 1877-78.

First Term begins Tuesday, Sept. 11th, 1877. | Third Term begins Wednesday, March 20, 1878.
Second Term begins Wednesday, Jan. 26, 1878. | Commencement Thursday, June 6th, 1878.

Champaign, Ill., July 23rd 1877

Board of Trustees of Illinois Industrial University

We will build your Chemical Laboratory Building and finish the same complete in every respects according to the Plans and Specification of A.C. Richer Architect, for the sum of Twenty three thousand eight hundred and ninety six Dollars (23,896\$)

Presto.
Terrall & Knight.
Kankakee Ill.

The contract for constructing the first Chemical Laboratory Building, drawn up in 1877 for the Illinois Industrial University. The "Plans and Specifications" were drawn up by Professor Richer, who later became dean of engineering. At top left is the university's first building, the "Elephant" which housed the classrooms, dormitories, chapel and club rooms of over a hundred students. (See page 3)

SCS Alumni Newsletter
School of Chemical Sciences
University of Illinois at Urbana-Champaign
106 Noyes Laboratory
505 South Mathews Ave.
Urbana, Illinois 61801

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