

SCS Alumni Newsletter

School of Chemical Sciences

School of Chemical Sciences Update

Jiri Jonas, Director, School of Chemical Sciences

The first issue of a new *SCS Alumni Newsletter* gives me the opportunity to comment on some of the recent changes in the administration of the School of Chemical Sciences. As some of you may already know, I became the director of the School in August 1983, following Herb Gutowsky whose leadership and hard work saw us through the difficult years of student unrest and budgetary problems.

My first task as director was to appoint a search committee for a new head of the Department of Chemistry. The result of the relatively brief search was more than satisfying. The unanimous candidate was our former colleague, Dr. Larry Faulkner, whom we had lost to the University of Texas at Austin. It is my great pleasure to announce that Larry Faulkner has accepted the appointment and is coming back to us in August. It was the consensus of the faculty that both the director of the School and the head of the Chemistry Department have significant time to allow them to carry out research. Therefore, both positions are essentially half-time. We are all thankful to John Hummel who looked

after the Chemistry Department this year in addition to all his other duties; I feel fortunate that he has consented to be associate director of the School.

During these few months as director, I have become more aware of the good fortune of SCS in having a group of loyal and supportive alumni. There is a need to communicate with our alumni frequently, and this is the reason we are very happy that Mrs. Sara Arndt, our new editor, joined us earlier this year. The *SCS Alumni Newsletter* is largely a result of her efforts.

It was reassuring to have the enthusiastic contributions of our staff and several alumni to this first issue of the newsletter in a new format. We hope it will be well received, and, at the same time, we look forward to all comments, suggestions and criticisms which could make it even better.

Our school is a very healthy organization and I believe we have good reason for optimism. Illinois has a tradition of strength in chemistry that goes back over 50 years and, just glancing over the recent awards and accomplishments of our

continued on page 2



Dr. Jiri Jonas

Jiri Jonas, 52, was born in Prague, Czechoslovakia, and received his doctorate from the Czechoslovak Academy of Science, Prague, in 1960. He was a research fellow at the Academy's Institute of Organic Chemistry before coming to the University of Illinois as a visiting scientist in 1963. He was appointed to full professor in 1974.

continued on page 2

Dr. Larry Faulkner

Larry Faulkner, 39, was a professor of chemistry at Illinois from 1973 until last year, when he left to teach and continue his research at the University of Texas at Austin. He had been on the faculty of Harvard University for three years before coming to Illinois.

In recent years, Faulkner has conducted a vigorous and highly productive research program in the areas of electrochemistry and electroanalytical chemistry, luminescence spectroscopy,

continued on page 2

Chemistry at Illinois

Larry Faulkner, Head, Department of Chemistry

My family and I anticipate, with genuine pleasure, our return to Urbana later this summer. We are grateful for the warm expressions of confidence that people in the School of Chemical Sciences, together with many alumni, have conveyed to us in recent weeks.

The post that I am about to assume has lent itself in the past to the creative development of a program of chemistry occupying a position of leadership in an international context. Even though the

enormous successes of prior years make a tough act to follow, I will do my best to live up to our finest traditions of performance. My goal is to see that Illinois is as exciting a place to do chemistry as any in the world. With imagination, enthusiasm and effort, we can realize that prospect.

A great many challenges lie ahead, as Jiri Jonas has noted. As we meet them, all of us at Illinois will need and will appreciate your continued loyalty and support.

Dr. Jiri Jonas contd.

Dr. Jonas is known for his pioneering studies of liquids at high pressure using nuclear magnetic resonance and laser Raman scattering techniques. In 1983, on the basis of this research, he was awarded the first Joel Henry Hildebrand Award in the Theoretical and Experimental Chemistry of Liquids, sponsored by the Shell Companies Foundation.

Jonas is the author of some 150 papers. He received an Alfred P. Sloan fellowship in 1967 and a Guggenheim fellowship in 1972. Dr. Jonas is a member of the American Chemical Society, the American Physical Society, Phi Lambda Upsilon, Sigma Xi and Alpha Chi Sigma. He is also a fellow of the American Association for the Advancement of Science.



Larry Faulkner

Dr. Larry Faulkner contd.

light-driven electron transfer and chemiluminescent redox processes, and application of thin-film technology to chemical problems. His work has yielded results of significance both for the fundamental understanding of chemical systems and for the practical concerns of chemical analysis.

Dr. Faulkner won the 1975 Young Authors' Prize in Electrochemical Science and Technology from The Electrochemical Society and, recently, a Special Creativity Extension from the National Science Foundation for 1984-86. He is a member of the American Chemical Society, The Electrochemical Society, Phi Beta Kappa and Phi Kappa Phi.

School of Chemical Sciences Update contd.

faculty and alumni, I feel we can be confident of continued success.

I would also like to point out several hard facts about the School of Chemical Sciences. The budgetary situation is improving, reflecting the generally improved economic climate in the nation, and thanks to the excellence and efforts of our faculty, the school has enjoyed an increase in funding from several different federal granting agencies. Currently, the total support from the Federal Government is higher than the support from the State of Illinois.

Graduate students, without question, are a most important factor determining the success of a department or school. It is more than satisfying to note that the enrollment of graduate students is holding up both in quality and number. We are also continuing to maintain first-rate research facilities. Our electronic shop, mass spectrometry laboratory, computer center, etc., are of a quality which is unparalleled in other compet-

ing institutions.

Being optimistic does not imply that we can rest—work has to be done. For example, we need to strengthen the faculty in specific fields of condensed phase chemistry, catalysis and polymer chemistry because the research expertise of our faculty should reflect the current trends in chemistry. Another aspect of our activities which deserves attention is an improved and closer interaction with industry. We have to explore and develop new ways for collaborative research and the exchange of researchers. In this area, specifically, we would appreciate comments from our successful alumni in the industry.

To conclude, I express my confidence that with our excellent faculty and graduate students and also with the support of our loyal alumni, the School of Chemical Sciences will continue the great tradition in chemistry, chemical engineering and biochemistry at the University of Illinois.

The Faculty

Named Professorships

Nelson Leonard is Fuson Professor

A recognized international authority in the field of organic chemistry, Nelson J. Leonard, professor of chemistry and biochemistry, has been named the first Fuson Professor of Chemistry at the University of Illinois. The professorship was established by a bequest from Reynold C. Fuson, professor of organic chemistry at the university for 35 years, who died in 1979.

Dr. Leonard is best known for his superb skill in synthesizing molecules. He has introduced new families of chemical reactions which have come into wide industrial use and his studies have led to greater understanding of enzyme behaviour and hormone action in plants and animals.

Leonard received the 1981 Roger Adams Award in Organic Chemistry and, in 1983, the Doctor of Science

degree from Oxford University, where he was a Rhodes Scholar from 1937-39. He is a member of the National Academy of Science.

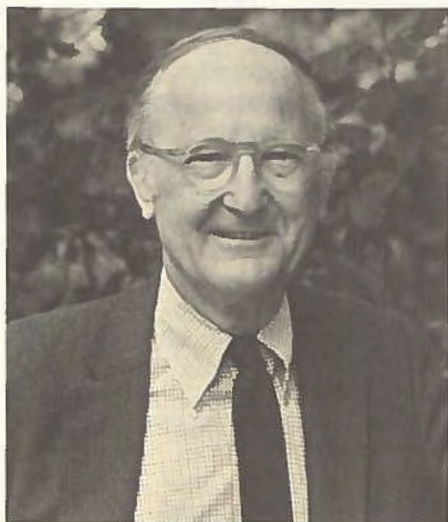
Hanratty Wins Shell Chair

The University of Illinois received \$750,000 from the Shell Companies Foundation last year for a Shell Distinguished Chair in Chemical Engineering. Professor Thomas Hanratty was named to the chair which is the first to a chemical engineer and the only Shell Chair in any discipline awarded to a public university.

Hanratty, who earned his doctorate in Princeton, has been at Illinois since 1953. His major research is in the area of fluid dynamics.

The Foundation told the university that the establishment of this chair recognizes "the quality of teaching and research in chemical engineering at your fine institution and Dr. Hanratty's demonstrated scientific ability and productivity, and potential for a continuing brilliant career."

Gutowsky Shares Wolf Prize



Herbert S. Gutowsky is one of three American university professors who will share the \$100,000 Wolf Foundation Prize in Chemistry for 1983-84.

Professors Gutowsky, Harden McConnell of Stanford and John Waugh of M.I.T. were selected for their contributions to the development of nuclear magnetic resonance (NMR).

The Israel-based foundation's award committee said its choice of laureates for the prize reflected the fact that "magnetic resonance spectroscopy has made a singular contribution to chemistry in theory, structure and dynamics of molecules in liquids and solids." Gutowsky was the first to apply NMR to chemical problems.

The \$12 million Wolf Foundation was established in 1975 by the late chemist, diplomat and philanthropist, Dr. Ricardo Wolf.

Gutowsky joined the UI faculty in 1948. He was head of the Department of Chemistry for 16 years and director of the School of Chemical Sciences for 13. Dr. Gutowsky won the National Medal of Science in 1977, the Irving Langmuir Award in Chemical Physics in 1966 and the Peter Debye Award in Physical Chemistry in 1975.

Masel and Higdon, Presidential Prizewinners

Jonathon Higdon and Richard Masel, of Chemical Engineering, are among eight UI faculty members selected to receive the first Presidential Young Investigator Awards.

The White House Office of Science and Technology Policy said that the awards are intended to fund nationwide research by 200 engineers and scientists at the beginning of their academic careers, and so should "help universities attract and retain outstanding young Ph.D.s who might otherwise pursue non-teaching careers."

The awards carry an annual base grant of \$25,000 from the National Sciences Foundation. In addition, NSF will provide up to \$37,000 a year to match contributions from industrial sources, bringing possible total support to \$100,000 per year.

Richard Masel works in surface science and catalysis. Jon Higdon's research concerns theoretical fluid mechanics.

In 1982, Dr. Masel was awarded a \$5,000 Exxon faculty fellowship in solid state chemistry by the American Chemical Society. The award is given annually to a young faculty member to encourage work in the field.

Oldfield Honored by ACS and the Biochemical Society



Professor Eric Oldfield won two prestigious honors during the past year. He was selected for the 1984 ACS Award in Pure Chemistry, sponsored by Alpha Chi Sigma, and for the 1983 Colworth Medal of the Biochemical Society.

The ACS award recognizes Oldfield's "creative use of nuclear magnetic resonance spectroscopy to explore topics in physical, biological, inorganic and geochemistry." The Colworth Medal cited him for the most outstanding work by a

young British biochemist, specifically for his contributions to membrane chemistry.

Oldfield was born in England and studied at Bristol and Sheffield Universities. He came to the U.S.A. in 1972 and, after postdoctoral appointments at Indiana University and M.I.T., joined the faculty at Illinois.

Dr. Oldfield's work involves determination of the structures of inorganic solids, such as minerals and heterogeneous catalysts, using NMR spectroscopic techniques.

Drickamer Chosen as AIC Chemical Pioneer

Professor of chemistry and chemical engineering, Harry G. Drickamer, was selected as a 1983 Chemical Pioneer by the American Institute of Chemists. Drickamer was named for "outstanding contributions which have had a major impact on advances in chemical science and industry and the chemical profession," the institute said. No more than four chemists are so honored in any year.

Dr. Drickamer, who joined the Illinois faculty in 1946, pioneered the use of high pressure to study electronic phenomena.

Also in 1983, Professors Drickamer and Gutowsky were among 20 Americans elected to membership in the American Philosophical Society.

Sloan Fellowships Awarded

Thomas B. Rauchfuss, associate professor of chemistry, and Dana Dlott, assistant professor in physical chemistry, were among researchers selected nationwide to receive Sloan fellowships for 1983 and 1984.

The fellowships, each worth \$25,000, are awarded to young researchers working on "problems at the frontiers of chemistry, economics, pure and applied mathematics, neuroscience and physics," the foundation said.

Rauchfuss, 33, investigates metal-sulfur interactions. A faculty member since 1978, he plans to use the Sloan money to purchase scientific instrumentation. In 1982, Rauchfuss was awarded a Dreyfus Teacher-Scholar grant of \$50,000. Only 15 such grants are awarded every year.

Dr. Dlott joined the faculty in 1980; his research interests are in chemical physics and physical and solid state chemistry.

Chemical Catalysis by Ultrasound

Dr. Kenneth Suslick and a team of chemists at Illinois have developed a way to initiate chemical reactions using high-intensity sound. The ultrasound technique can produce reactions, at or near room temperature, which would normally require a heat of several hundred degrees centigrade. In a recent publication, Suslick's research group announced that ultrasound can increase the rates of some chemical reactions a million-fold.

Such sonochemistry is the result of very high-intensity sound waves passing through a liquid and causing local vaporization of the liquid. The process is known as cavitation. This rapid formation, growth and implosive collapse of gas vacuoles within the liquid generates localized hot spots, lasting only a few nanoseconds, that can have temperatures as high as 3000 K and pressures as high as 300 atm.

Most commercial catalysts are solids, or metal compounds dissolved in solution which must often be altered by heat or light. Some reactions, however, will not tolerate high

temperatures because other undesired products would then be formed.

Using light to create catalysts is limited to those compounds which can be stimulated conveniently with light; in addition, such light-stimulated or "photochemical" processes can be very difficult to scale up to the size needed for industrial use. In contrast to activation by heating, the use of ultrasound to initiate catalysis does not increase the temperature of the reaction mixture and can be done easily on a large scale.

Catalysis of chemical reactions is used in nearly all aspects of the chemical, pharmaceutical and petroleum industries. "Our new process does not replace the use of thermal or photochemical reactions," Dr. Suslick says, "rather it is likely to be complementary to them. We are able to induce different chemistry through a rather simple and inexpensive technique. It is likely that the use of intense ultrasound will become an important tool of both the research and the industrial chemist."

Illinois Faculty Visit China

Hendrickson will be Specialist at Nanjing

Professor David Hendrickson, head of Inorganic Chemistry at Illinois, is one of the 15-20 U.S. chemists who will visit China in 1984 as teaching specialists for a \$200 million World Bank program to refurbish Chinese universities.

The goal of the project is to strengthen science and engineering teaching and research programs in 28 universities of the People's Republic of China. Hendrickson will lecture and consult at the Coordination Chemistry Institute of Nanjing University for the month of September, 1984.

Director Jiri Jonas and Professor Nelson J. Leonard Visit the People's Republic of China

An official delegation from the University of Illinois, sponsored by the UI Foundation, visited China for three weeks in March and April. Professors Jiri Jonas and Nelson J. Leonard were among 10 faculty members representing different scientific disciplines at the university. Lecture and discussion visits in Beijing were part of the program, which also included signing exchange agreements with the Chinese Academy of Sciences, Beijing, and with Fudan University, Shanghai.

One of the most heartwarming experiences for the visitors was to meet U. of I. alumni, most of them with degrees from the 1930s and 1940s, who had returned to important positions, teaching and research posts, following the Cultural Revolution. In chemistry, these included three Ph.D. students of Roger Adams (a fourth was not well) and one of John Bailer's students. It is clear that all of these alumni hold dear the memories of the time they spent at the University of Illinois.

Grants and Fellowships

Dreyfus Grant . . . The Camille and Henry Dreyfus Foundation awarded a grant of \$25,000 to the university on behalf of James Lisy, a new professor of chemistry in 1981, as seed money for new ideas and concepts.

Guggenheims . . . In April of this year, David Shapiro, professor in the Department of Biochemistry, was awarded a Guggenheim fellowship to continue research on the hormone estrogen.

Faculty Awards, Honors . . . in brief

Richard C. Alkire, professor of chemical engineering, won the 1983 Research Award of the Electrodeposition Division of The Electrochemical Society. One of his papers was chosen as the best paper of the year by a young author in the Journal of The Electrochemical Society in 1983. Alkire is vice president of the society and will become president in 1985. He is the author of more than 65 technical papers and patents.

Last year, Charles A. Eckert, professor and head of the Department of Chemical Engineering, became the fifth member of the Department to be elected to the prestigious National Academy of Engineering, joining Harry Drickamer, Thomas Hanratty, James Westwater and Walter May. This gives the University of Illinois the highest percentage of faculty so honored of any department in the country.

Professor of biochemistry and former head of the Department, I.C. Gunsalus, won a major honor from the National Academy of Sciences in 1982. The Selman A. Waksman Award recognized Gunsalus for his "pioneering studies in

microbial biochemistry." More than a decade ago, Gunsalus, who has been a faculty member since 1950, and his associates, reported research findings to indicate that microorganisms could be induced to break down materials previously not thought biodegradable.

In April of this year, Gunsalus was elected a foreign associate of the French Academy of Sciences.

The work of Gary Schuster, professor of chemistry, was cited in the Encyclopedia Britannica's 1981 Yearbook of Science and the Future as one of the 15 most significant chemistry research projects in the United States in the past year. Schuster's research, on the luminescence in fireflies, presents some answers on the mystery of how visible light can result from a chemical reaction.

Mark Stadtherr, associate professor of chemical engineering, received a 1982 Xerox award of \$1,000 for outstanding faculty research at the University of Illinois. He is an expert in the mathematical modeling of chemical processing and trends in the chemical industry.

The Rose Lectureship in Biochemistry and Nutrition was established in 1977, on the occasion of William C. Rose's 90th birthday, as a tribute to his career of excellence in research and teaching. It honors a distinguished gentleman who taught at Illinois for 40 years and whose career spans the life of biochemistry in the United States.

Professor Rose's fundamental studies of protein and amino acid metabolism led to the discovery of threonine, an amino acid indispensable in animal and human diets, and to the establishment of quantitative amino acid requirements for humans.

Dr. Rose, who was 97 in April, first came to Illinois in 1922, when biochemistry was still known as "physiological chemistry" and was one of the seven divisions in a department of 40 senior staff, headed by Professor Noyes. Three years later, Roger Adams succeeded to the headship and, under his direction, heads of each of the sections of chemistry sat on an executive committee, a democratic body which, Rose recalls, argued like crazy, but always followed the majority decision. It was this tremendous unity, says Rose, which accounted in large part for the success of the department.

"Biochemistry came alive in his words"

At Illinois, Rose's pioneering studies began when he and his graduate students attempted to manufacture a diet for laboratory rats, containing everything an animal would need to survive. The experiment involved isolating and purifying all the known amino acids which, at that time, were prohibitively expensive in America. Rose and his research group were obliged to make their own. He remembers paying local barbers to save hair cuttings and hauling large bags back to his labs to make the amino acid sistine, which can be synthesized from human hair. To Rose's amazement, the artificial diet caused rats to weaken and die. The experiment had revealed the need for an unknown amino acid which, in 1934, Rose, and

several graduate students, isolated and identified as threonine.

This new discovery allowed studies on the growth of rats fed diets of completely defined amino acid composition which led to the measurement of the quantitative amino acid requirements of the weanling rat.

In 1936, when Professor Rose presented his findings to the Nutrition Foundation, a government representative, concerned with the health of U.S. soldiers, asked if there wasn't someone who could do for humans what Rose had done for rats. Dr. Rose heard himself say "give me \$15,000 and I'll do it." He was sent out of the room while a



Dr. Rose in 1968

quick decision was made. Actually, says Rose, the \$15,000 was a gross underestimate. His project cost the Nutrition Foundation about \$50,000 over three years.

The next step in the experiments, for humans, was to make the amino acid diet palatable. Dr. Rose tells how his wife baked a number of disasters in pursuit of the ultimate amino acid bread, until, eventually, they came up with a wafer which he and his students found moderately tasty. He fed the diet to graduate students for several days at a

time and, unknown to them, dropped out each amino acid one by one. He found that, in contrast to the ten amino acids essential to the growing rat, adult man requires only eight.

"a classic in the history of nutrition and for the benefit of man"

After almost 200 experiments with 40 graduate students over a ten year period, Dr. Rose was able to define the quantitative amino acid needs of adult man. His series of 16 papers appeared in the early 1950s in the *Journal of Biological Chemistry*, and "stands as a classic in the history of nutrition and for the benefit of man." (Dr. C.G. King in *A Good Idea: The History of the Nutrition Foundation*).

Professor Rose is renowned as much for his excellence in teaching as for his research. At Illinois, he always insisted on giving the undergraduate elementary biochemistry course, and prepared for hours before each of his graduate classes on intermediary metabolism as there was no current literature on the subject. When former students and friends gathered in Champaign to celebrate Rose's 90th birthday, Dr. Carl Vestling gave him this tribute; "Dr. Rose's influence on students constituted a key contribution to biochemical thought for over 50 years . . . Many audiences have been quite literally spellbound by the magic effectiveness of W.C. Rose as a lecturer and public speaker . . . Biochemistry came alive in his words."

Dr. Minor J. Coon, also a former Rose student, and now chairman of the Department of Biological Chemistry at the University of Michigan, wrote recently of his professor: "innumerable students have said that after attending one of his lectures the die was cast and they knew they would become biochemists."

Though Dr. Rose feels that his health now precludes an active participation in the scientific and social interactions at the university, he continues in his full spirit, intellect and humor. The School of Chemical Sciences is most fortunate to count him among its truly outstanding former professors.

In Memoriam

Willis H. Flygare (1936-1981)

from a tribute by Harry Drickamer and Peter Beak

Willis H. Flygare died on May 18, 1981, at the age of 44. Bill Flygare was one of the most creative and dynamic physical chemists in the world. His truly original work has expanded our knowledge of molecular properties and structure in an amazing variety of ways.

Flygare developed a new experimental method involving the molecular Zeeman effect and, with it, measured most of the known molecular quadrupole moments and magnetic susceptibility anisotropies. By making improvements affecting line widths, he built a microwave spectrograph with unsurpassed resolution and used this spectrometer to determine many spin interaction constants of molecules, which he related to molecular electronic structural properties. He was able to show, for the first time, the presence of formamide in interstellar space. Flygare determined structures of many molecules of chemical interest and measured various internal rotation barriers, supplementing his previous work on hindered rotation of trapped species in solids and devised a new and rapid method, involving laser light scattering,

for determining electrophoretic mobilities and diffusion constants of large molecules.

The impact of Flygare's research has been very broad. His molecular Zeeman studies revealed details of electronic structure in many molecules of importance in both organic and inorganic chemistry and his studies of ring currents and their implications for aromaticity are particularly significant for organic chemistry. His electrophoretic mobility work aroused widespread interest among biophysical chemists and his solid state work attracted considerable favorable attention among physicists. Flygare's book *Molecular Structure and Dynamics* is a classic in modern chemical physics. His accomplishments were recognized by election to the National Academy of Sciences and the American Academy of Arts and Sciences. Awards include the Baekeland Medal, the Fresenius Medal and the Langmuir Prize in Chemical Physics.

Bill's quick mind and dynamic enthusiasm made him a leader in the scientific community both at Illinois and around



the world. His approach inspired students to realize the excitement of research, and his work led molecular science in new directions. None of his colleagues can ever forget the courage and gallantry with which Bill continued his first class research in the face of a long and devastating illness. His example of excellence is enduring.

The W.H. Flygare Memorial Fund has been established in the Chemistry Department in Bill's memory.

Sherlock Swann (1900-1983)

from a memorial address by Richard Alkire



Sherlock Swann, Jr., emeritus research professor of Chemical Engineering, died on March 14, 1983, in Lutherville, Maryland. He was 82.

This quiet scholar, whose bibliographic achievements are known throughout the world, served on the Illi-

nois faculty for 42 years. A graduate from Princeton in the class of '22, Swann earned his Ph.D. in 1926 from Johns Hopkins University where his studies with Professor Arthur Grollman inspired him to specialize in electro-organic chemistry.

His first paper in the field, concerning the electrolysis of caproic acids, was published in 1929, two years after he joined the staff at Illinois. By 1934, Swann had launched a serious effort to gather electrochemical literature and, in the following year, published the first of many bibliographic collections. Through his authorship of papers, patents and review chapters, Professor Swann singlehandedly kept alive the promise and spirit of electro-organic chemistry in the United States from the 1930s to

the 1950s. His chapter in the *Techniques of Organic Chemistry* series was, for many years, the sole review in the English language.

In recent years, Professor Swann devoted most of his time to the compilation of his *Bibliography of Electro-Organic Syntheses, 1801-1975*, published, jointly with Professor Richard Alkire, in 1980. This exhaustive collection of literature references represents the culmination of 45 years of scholarship in the field.

Sherlock Swann was a man who truly loved his work. Generations of students remember the vision of him seated in his office, the door open in true Princeton style, lights out except for a single bulb over his cluttered desk and the walls covered floor to ceiling with journals and abstracts.

Carl Marvel Dedication

The Department of Chemistry at the University of Arizona dedicated the Carl S. Marvel Laboratories of Chemistry on April 28, 1984, in Tuscon, Arizona.

Dr. Marvel, now 89, retired in 1961 from an illustrious career in teaching and research at the University of Illinois and moved to the University of Arizona, where he has pursued a second illustrious career for the past 23 years.

Marvel's son John and daughter Molly unveiled a plaque which dedicates the building "in recognition of the contributions of Carl Shipp Marvel to the field of chemistry. His outstanding career as a teacher, researcher, and industrial consultant defines the hallmark of excellence toward which all students of chemistry strive."

Speakers at the dedication, held under the warming Arizona sunshine, gave short appreciations of the many facets of "Speed" Marvel's careers, and especially of his faith and confidence in his colleagues and friends. The warmth of Speed's personality pervaded the scene as it had the lives of those in attendance.

The official representative of the University of Illinois was Nelson J. Leonard, Reynold C. Fuson Professor of Chemistry.

Dr. Marvel is one of the 20th century's foremost polymer chemists. Born on a farm in 1894, he attended a one-room

country school near Waynesville, Illinois. In 1920, Speed received his Ph.D. in chemistry under Professor Noyes and became a chemistry instructor at Illinois. From the outset, Marvel was associated with the production of outstanding organic chemists—men such as

Wallace Carothers and George Graves, who became leaders of their field in the United States. In 1928, Marvel began his consulting career with DuPont which still continues after 56 years. At the age of 89, he still goes in to work every day.

SCS Events

Symposium for John Bailar, Jr.



John C. Bailar, Jr., with former students, from left to right: back row - Ward Schaap, John Kuebler, T.A. Donovan, Joel Selbin, Fred Basolo, Bodie Douglas, Robert Brasted, James Quagliano; middle row - Carl Rollinson, Stanley Kirchner, John Bailar, Clayton Callis, Hans Jonasson, Leonard Interrante; front row - C.F. Liu, Stanley Madan, Gunther Eichhorn, Larry Boucher; seated - Catherine Travaglini, Mrs. C.F. Liu and Ieva Hartwell.

Professor Swann had been a member of The Electrochemical Society since 1928, serving as its president in 1958 - 59, and as divisional editor for the Electro-Organic Division from 1939 - 68. He was made an honorary member in 1974, and was lifetime honorary chairman of the Chicago Local Section. In May of this year, The Electrochemical Society held an Organic Electrochemistry Symposium in Memory of Sherlock Swann at their meeting in Cincinnati, Ohio. In a memorial address, Professor Alkire spoke of "Sherlock's vision, of his fascination with, and lonely pursuit of, a field at a time when it was in repose, and of his meticulous attention to detail." In all, 73 papers and addresses were presented, a testimony to the vigor of the field which Swann preserved for future generations.

Over 80 people attended a day-long symposium in April to celebrate Professor John Bailar's 80th birthday and his 56 years of teaching and research at the University of Illinois.

Speakers, most of them former Bailar students, talked of his impact on the chemical community and his spirit of dedication which has inspired several generations of younger scientists.

Bailar joined the Faculty of Inorganic Chemistry in 1928. He has authored textbooks in general chemistry and written over 250 research papers. In 1957, Dr. Bailar was president of the American Chemical Society. Some of his many awards include the ACS Award in Chemical Education, 1961,

the ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry, 1972, and the Morie Ferst Award of Sigma Xi for "Education through Research," 1983.

At a dinner following the presentation of technical papers, Dr. Theodore Brown, vice chancellor for research and dean of the Graduate College, spoke of John Bailar's reputation as a patient but demanding teacher, with a desire to educate beyond chemistry. He is a proselyte, Brown said, always eager and able to convince students from other areas that they can become inorganic chemists. Dr. Brown wished Bailar "good health and continued success in what looks like a promising career."

The Alumni

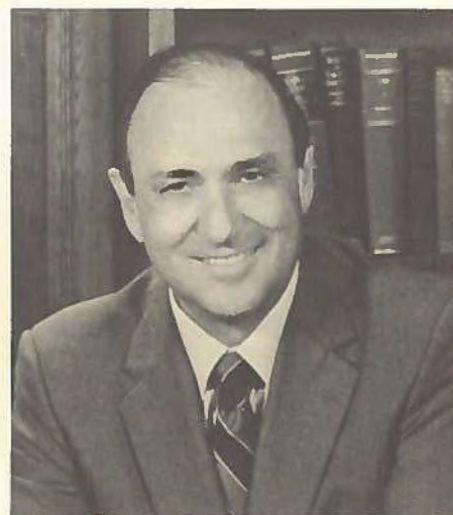
Illinois Chemists at ACS

Dr. Fred Basolo, Ph.D. 1943, Morrison Professor of Chemistry at Northwestern University, has just ended a one-year term as 1983 president of the American Chemical Society. Basolo is a member of the National Academy of Sciences and has been a Guggenheim Fellow at the University of Copenhagen and a Senior National Science Foundation Fellow at the University of Rome. He is co-author of two widely used chemistry textbooks.

For the same year, Clayton Callis, Ph.D. 1948, was re-elected to a second term as chairman of the board of directors. Callis is director of environmental operations and technology planning at Monsanto Industrial Chemicals Company, St. Louis, and is on the editorial board of the American Chemical Society. He is a member of the American Association for the Advancement of Sciences, the American Institute of Chemists, the Society of Chemical Industry - American



Fred Basolo



Clayton Callis

Section and Alpha Chi Sigma.

The American Chemical Society, a nonprofit scientific and educational organization with a worldwide membership of 127,000 chemists and chemi-

cal engineers, is the world's largest organization devoted to a single scientific discipline. Twelve Illinois alumni were presidents of ACS between the years 1950 and 1983.

Achievement Award to Dorothy Simon



A chemist was one of the three persons chosen last year by the Alumni Association for its highest honor—the Illini Achievement Award. She is Dorothy Martin Simon, Ph.D. 1945, vice president for research and senior technical officer of the Avco Corporation, a 2.3 billion-dollar diversified finance, products and services company. Simon's nomination described her as "the only woman vice president of research for a corporation in the billion-dollar sales level or higher in this country . . . or in the world for that matter."

SCS is Tops in Ph.D.s

The University of Illinois has regained its almost traditional position as the largest producer of new Ph.D. chemists in the United States, according to the latest annual report of the American Chemical Society's Committee on Professional Training.

The University of California at Berkeley, which held the lead for the previous

two years, fell to second and the Massachusetts Institute of Technology was third. Urbana-Champaign has been the largest producer of Ph.D. chemists for eight of the past 10 years.

Unofficial figures for the 1983-84 school year show that 43 students were awarded doctoral degrees in chemistry at Illinois.

Illinois' Eminent Chemical Engineers

Seven men with ties to the University of Illinois were designated "Eminent Chemical Engineers" by a national society last year. The seven were among 29 living chemical engineers to receive the honor as part of the 75th anniversary celebration of the American Institute of Chemical Engineers.

Two of those named - Harry Drickamer and James Westwater - are professors at Illinois. Five others are alumni of the department. They are: **Thomas Baron**, Ph.D. 1948, who taught at Illinois for several years before becoming president of Shell Development Company; **R. Byron Bird**, B.A. 1947, professor of chemical engineering at the University of Wisconsin; **Max S. Peters**, former head of chemical engineering at Illinois and later dean of engineering at the University of Colorado and president of the American Institute of Chemical Engineers; **Robert L. Pigford**, Ph.D. 1941, professor at the University of Delaware; and **Klaus Timmerhaus**, Ph.D. 1952, a chemical engineering professor at the University of Colorado.

Sinfelt is Perkin Gold Medalist



Alumnus John Sinfelt, M.S. 1953, Ph.D. 1954, Hon.D.Sci. 1981, is known internationally for his pioneering research in catalysis. This year, he was elected by six leading chemical associations to receive the 1984 Perkin Gold Medal, awarded by the Society of Chemical Industry. The award recognizes an individual for outstanding contributions to applied chemistry,

and is regarded as one of the top three chemistry honors in America.

Sinfelt is a senior scientific adviser in the corporate research science laboratories of Exxon Research and Engineering Company. His most acclaimed research deals in the area of bimetallic catalysts where he evolved the concept of "bimetallic clusters" to describe highly dispersed catalytic entities composed of two metals. One of the practical applications of Sinfelt's fundamental studies has been the development of a platinum-iridium catalyst now used worldwide to make high antiknock, low-lead gasoline.

In an article in *Chemical and Engineering News*, Sinfelt says he regards his academic training in chemical engineering at Illinois as a good background for his catalysis work. He stresses the unusual organization of the two departments of chemistry and chemical engineering which allow students of both to experience a common curriculum in many respects. This kind of research perspective smoothed his own transition to studies of catalysis.

In 1979, Sinfelt received the National Medal of Science, the highest honor bestowed on an American scientist or engineer.

U of I Teleconference

Two of our illustrious chemistry alumni, Richard Heckert and Donald Felley, both 1949 Ph.D.s, were the Philadelphia hosts for a video-teleconference in April to aid the university's Campaign for Illinois. The satellite-assisted closed-circuit video-teleconference served as a workshop for a network of 5,000 volunteers in 19 U.S. cities, who are personally calling on thousands of alumni and friends of the University of Illinois. The teleconference was part of the last phase of a five-year fundraising effort, sponsored by the University of Illinois Foundation which topped its \$100 million goal earlier this year.

Gifts

We would like to thank all the many individuals and corporations who have donated so generously to the School. All gifts, large or small, reflect the interest of our alumni in the excellence of education and research at the School of Chemical Sciences. We value your continued support and commitment.

Remember: your contributions to the university can be specifically designated for use by our departments. Please write on your check that your gift is to go to the School of Chemical Sciences.

Alumni News

1935

Alfred Clark, Ph.D. 1935, a retired employee of Phillips Petroleum, was awarded the 1981 Oklahoma Chemist Award of the ACS for his contributions to the field of chemical catalysis.

1938

Bob Joyce, Ph.D. 1938, has been editorial consultant for *Organic Reactions* for the last four years, and became Secretary-Treasurer of *Organic Reactions, Inc.* last July after the tragic death of

Boris Weinstein. He has also edited the National Academy report *Prudent Practices for Disposal of Chemicals from Laboratories*.

1939

Jacob Kleinberg, Ph.D. 1939, received the 39th Midwest Award of the ACS in 1983. He is a professor of chemistry at the University of Kansas and his research interests center largely on the chemistry of non-aqueous solvent systems, unusual oxidation states of metals and the chemistry of alkali metal superoxides.

1942

In 1980, Robert Brasted, Ph.D. 1942, was the recipient of the James Flack Norris Award for "Outstanding Advancements in the Teaching of Chemistry," awarded by the Northeastern Section of the ACS.

1943

The 1981 Anselm-Payen Award of the ACS Cellulose, Paper and Textile Division went to Stanley P. Rowland, Ph.D.

1943, whose work has been in the area of the development of new polymers.

Quentin F. Soper's contributions to reducing costs of food production worldwide have placed him among the illustrious recipients of the John Scott Medal, established in 1816. Soper, Ph.D. 1943, is an agricultural research adviser for Lilly Research Laboratories at Greenfield and won the award for his discovery of dinitroaniline herbicides, used in "Treflan." Previous recipients of the award include Marie Curie, Frederick Banting, Orville Wright, Sir Alexander Fleming and Thomas Edison.

1946

Minor J. Coon, Ph.D. 1946, professor and chairman of the Department of Biological Chemistry at the University of Michigan, received the Bernard B. Brodie Award in Drug Metabolism for 1981 from the American Society of Pharmacology and Experimental Therapeutics. The award includes a medal and an honorarium of \$2,000.

1947

Italy's prestigious Dante Alighieri Award for 1982 was presented to alumnus **S.L. Meisel, Ph.D. 1947,** vice president of research for Mobil Research and Development Corporation. The award, established in honor of the Italian poet, is given annually to those who have made outstanding contributions to the arts and sciences. At Mobil, Dr. Meisel oversees all corporate research on exploration and production, refining and petroleum products. He has also been involved in the development of photovoltaic cells for the conversion of sunlight directly into electricity.

William Wagner, Ph.D. 1947, was a recipient of a Sullivan Medallion from the University of Kentucky for 1983.

1948

Ernest L. Eliel, Ph.D. 1948, professor of chemistry at the University of North

Carolina, received the Harry and Carol Mosher Award of the Santa Clara Valley Section of the ACS in 1982.

1949

The Juvenile Diabetes Foundation presented the 1980 Rambaugh Scientific Award to **Dr. Joseph Lerner, M.S. 1949,** for advancing research into diabetes. Lerner is professor and chairman of the Pharmacology Department at the University of Virginia.

1952

Klaus Timmerhaus, Ph.D. 1952, was one of the five faculty members at the University of Colorado to receive the Sterns Award for outstanding service in recent years. He was cited especially for directing the growth of engineering graduate programs.

1953

A DuPont Company research scientist won the 1982 ACS Award for Creative Work in Fluorine Chemistry. **William J. Middleton, Ph.D. 1953,** holds more than 100 patents, primarily in organofluorine and cyanocarbon chemistry.

1954

George W. Parshall, M.S. 1956, was the 1983 winner of the ACS Award in Inorganic Chemistry, sponsored by the Monsanto Company. He is now director of chemical science for DuPont and was cited for his research in transition metal chemistry.

1957

Gary Griffen, Ph.D. 1957, organic chemistry professor at Louisiana State University, has won a distinguished faculty award for 1983-4.

John K. Stille, Ph.D. 1957, now at Colorado State University, won the

1982 ACS Award in Polymer Chemistry, sponsored by the Witco Chemical Corporation Foundation. He specializes in mechanisms of polymerization and the synthesis of novel polymers.

1958

The 1982 Southern Chemist Award by the Memphis Section of the ACS was given to **James D. Winefordner, Ph.D. 1958,** graduate research professor at the University of Florida.

1961

In April of this year, **Thomas K. Dykstra, Ph.D. 1961,** became assistant director, electrographic technology division, Film Manufacturing Organization at Kodak Park, Eastman Kodak Company. His degree is in organic chemistry.

Gary A. Rechnitz, Ph.D. 1961, Uni-del Professor of Chemistry at the University of Delaware, received the 1983 Delaware Section Award. He was chosen for his work on bioselective membrane electrodes.

1962

Alumna Barbara Evers Loughman, B.S. 1962 (she has a Ph.D. from Notre Dame), was honored recently as a recipient of the Upjohn Company's N.E. Upjohn Award. Dr. Loughman is research head, Hypersensitivity Diseases Research, and was recognized for her development of important immunologic assay methodology for early drug-lead selection and for the key role she has played in the development of Atgam Sterile Solution which helps prevent the rejection of kidney transplants.

Marvin Poutsma, Ph.D. 1962, is the new director of the chemistry division at Union Carbide's Oak Ridge National Laboratory (ORNL) in Tennessee. He has been a leader of the fossil fuels chemistry group and, most recently, head of the inorganic chemistry and chemical physics section at ORNL.

1965

In 1982, the editorship of the Chemical Abstracts Service passed to David W. Weisgerber, Ph.D. 1965, an organic chemist who has spent much of his professional life on the CAS staff.

The Rohm and Haas Company's 1983 Otto Haas Award was presented to Walter G. De Witt, Ph.D. 1965, one of the company's research scientists. The award recognizes De Witt's contribution to the development of nonwoven binders.

1967

Once every three years, the Agnes Fay Morgan Research Award is presented to a young woman chemist (under 40 years old) for outstanding research achievement. In 1981, Illinois alumna, Dr. Marcetta York Darensbourg, Ph.D. 1967, was the recipient of the honor, given by the national Iota Sigma Pi Chemistry Honor Society, for her con-

tributions to the field of inorganic and organometallic chemistry.

Bassam Sakhshiri, Ph.D. 1967, faculty 1968-70, now coordinator of the general chemistry program at the University of Wisconsin, was recently given the Kiekhofer Award for excellence in teaching at that university. The award is accompanied by a cash gift of \$1,000.

1969

Edward Epstein, Ph.D. 1969, has been named technical director of the Dairy Division, Refrigerated Food/Distribution Services Group of Beatrice Foods. His work with Beatrice has resulted in two food science patents.

1972

Bennie R. Ware, Ph.D. 1972, chairman of the Chemistry Department at Syracuse University since 1979, will become

the new William R. Kenan Jr. Professor of Science at SU, beginning in July 1984. Applications of a technique he developed in electrophoretic light scattering have ranged from medical research to the study of processes in the chemical, electronics and paper industries.

1975

Ms. Barbara Slatt, Ph.D. 1975, of Procter and Gamble, recently accepted an appointment as associate director Product Development, Bar Soap and Household Cleaning Products Division.

1979

A \$5,000 unrestricted fellowship in Solid State Chemistry, sponsored by Exxon, has been awarded to 1979 alumnus Steven L. Suib, now assistant professor of chemistry at the University of Connecticut. He is studying the chemistry and catalytic activity of zeolites.

KEEP IN TOUCH

Return to: Sara Arndt, Editor
SCS Alumni Newsletter
106 Noyes Laboratory
505 South Mathews Ave.
Urbana, IL 61801

NAME _____

ADDRESS _____

STATE & ZIP _____

DEGREE & YEAR _____ FIELD _____

COMPANY AFFILIATION _____

TYPE OF WORK YOU DO _____

Please check here if above address is new.

ALUMNI NEWS (please include photos, newspaper clippings, extra sheets, etc.)

Editor's note: The School of Chemical Sciences has over 7,000 living alumni and the largest number of living chemistry Ph.D. alumni of any department in the country. Communication with the School and with former colleagues reminds all our alumni of the excellent traditions at Illinois which they helped create and which have fostered many a brilliant career and fond memories.

Since there has been a lapse of several years in the publication of the *SCS Alumni Newsletter*, much of the news is not current but reflects some of the events since 1981 in the School of Chemical Sciences. Consequently, this is a bumper issue. We plan to publish the newsletter twice a year and, for next time, would very much like to have news of your professional life and affiliation. Please keep in touch.



William Albert Noyes Laboratory of Chemistry, Urbana, Illinois

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

Non-Profit Org.
U.S. Postage Paid
Permit No. 75
Urbana, Illinois 61801