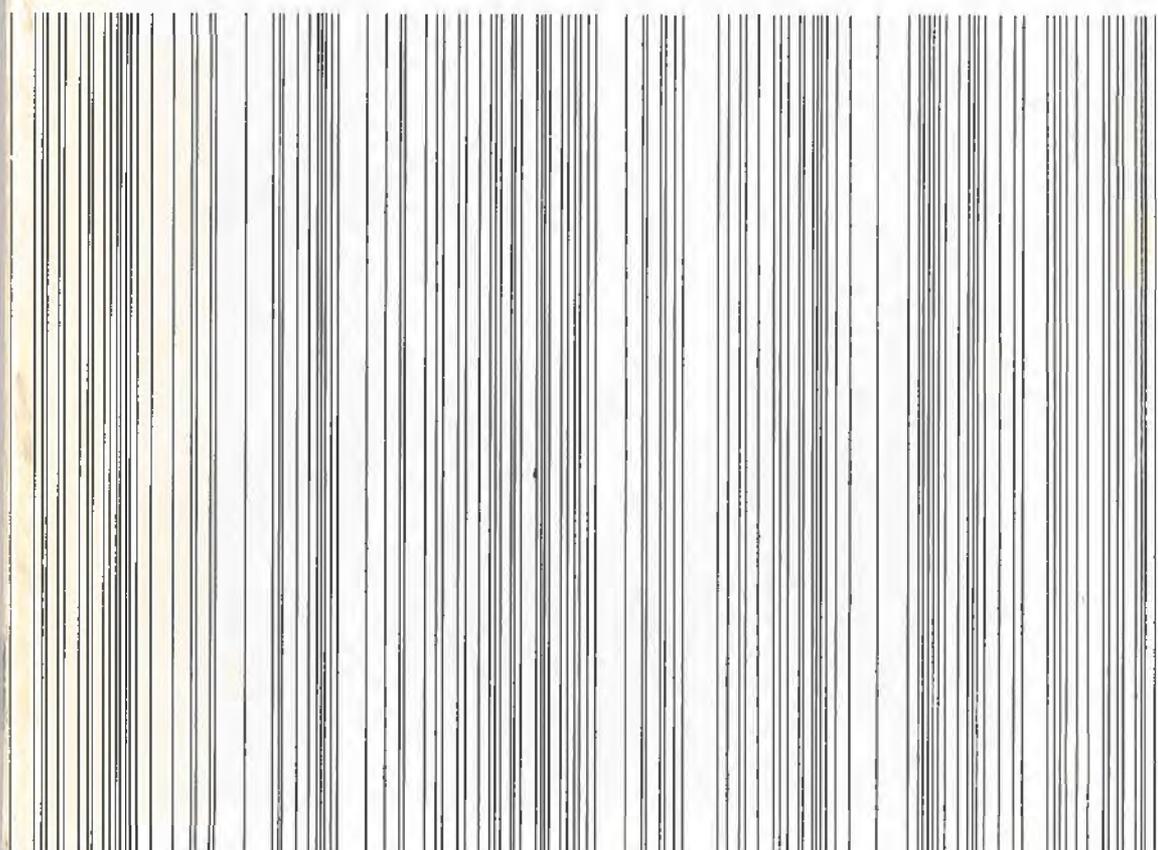
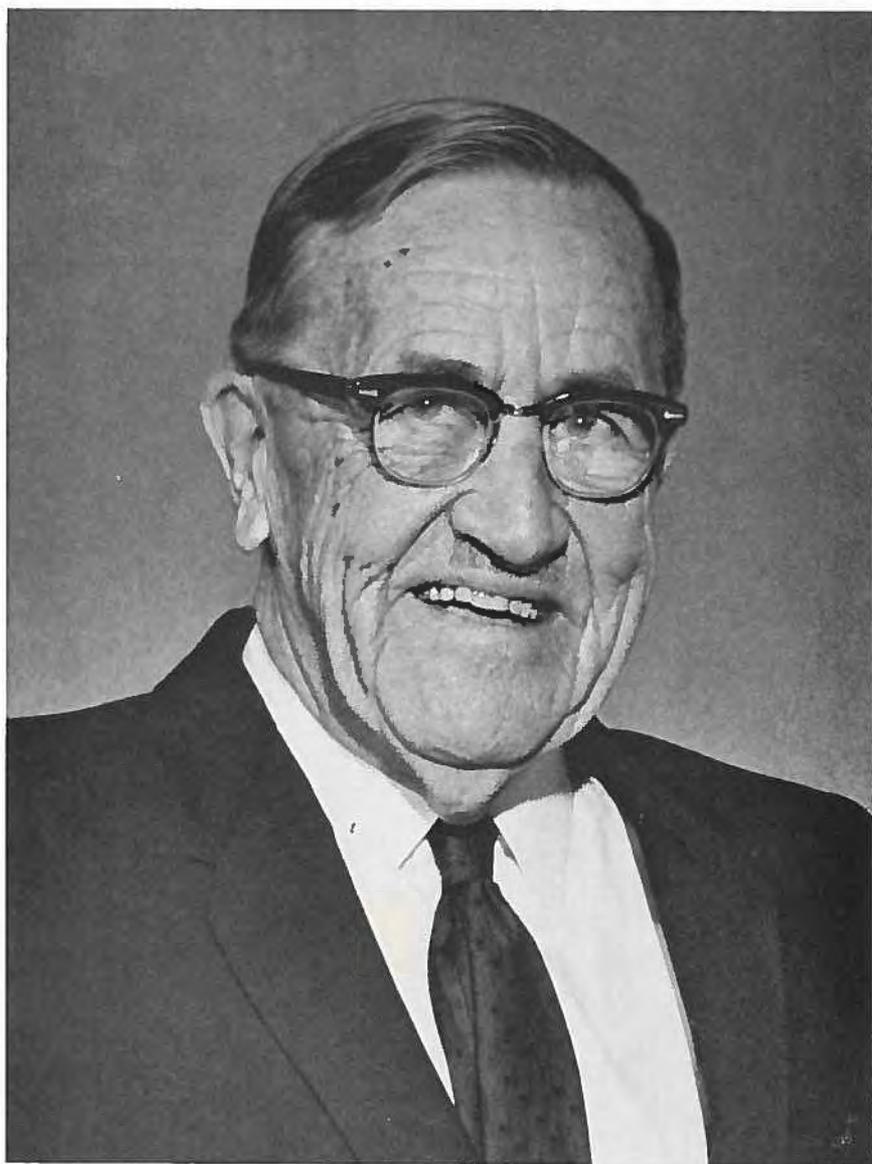

ALUMNI NEWSLETTER

SCHOOL OF CHEMICAL SCIENCES

UNIVERSITY OF ILLINOIS at Urbana-Champaign





Roger Adams
January 2, 1889-July 6, 1971

Roger Adams — Educator, Scientist

Professor Emeritus Roger Adams died on Tuesday, July 6, 1971, at the age of 82. His service to the University of Illinois, to thousands of students, to his country, and to the science of chemistry spanned two normal generations. In the course of this furiously active life his contemporaries acknowledged his leadership and contributions by presenting him a myriad of honors and awards. "The chief" was respected, revered, honored, and loved during his lifetime, and will be remembered as one of the great architects and builders of the chemical sciences. It is doubtful that another will ever attain such a degree of universal recognition.

It is fitting that we commemorate Roger Adams's life in the Alumni Newsletter by reprinting the following chronicle written by his long-time friend and associate, Professor Nelson Leonard, upon the celebration of Roger's eightieth birthday.

By NELSON J. LEONARD

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On January 2, 1969, we celebrate the eightieth birthday of Roger Adams, who was born in Boston, Mass. Professor Emeritus of Chemistry at the University of Illinois since 1957, Dr. Adams has been a member of the staff since 1916. He maintains an active interest in chemists and chemistry and is to be found daily in his office in the Department of Chemistry and Chemical Engineering in Urbana. In addition, he plays an active role as a member of the Board of Natural Resources and Conservation of the State of Illinois (1941-), Advisory Board of the Robert A. Welch Foundation, Houston, Texas (1956-), Scientific Advisory Board of the Sugar Research Foundation (1959-), Board of Trustees, Battelle Memorial Institute, Columbus, Ohio (1953-), Board of Directors of Champaign National Bank (1956-), and Advisory Boards of *Organic Syntheses* (1930-), and *Organic Re-*

actions (1968-). Roger Adams still resides in the spacious house at 603 W. Michigan Ave., Urbana, which, since the death of his wife, Lucile Wheeler Adams, he maintains with himself as sometime gardener. His interest in gardening runs to the specialized. At the summer home in Greensboro, he cultivates the finest maidenhair fern bed in all Vermont. He now shares his enthusiasms for the out of doors, for travel, for games, especially poker and gin rummy, and for education with his grandchildren, Beth, Christina, Roger, and Jennifer Ranz, along with his daughter Lucile, and his son-in-law, Dr. William E. Ranz, who is on the staff in Chemical Engineering at the University of Minnesota. His larger family includes the many devoted students who received their Ph.D. degrees with him at Illinois and the many colleagues who have worked with him toward realized goals in government, foundations, in the chemical profession, in editing and publishing, and in university development.

Roger Adams received his early education at Boston Latin School and Cambridge Latin School, where his interest in chemistry was first excited. It is said that he did not take college seriously until he was in his junior year at Harvard University, then at the age of eighteen. Work during the summers when he was in college included a trip as cattle tender on a cattle steamer from Boston to London, and he was able to cycle about England before the ship was readied for return. A desire for travel was thus implanted early. Harvard degrees were received in rapid succession: A.B., 1909; A.M., 1910; Ph.D., 1912. Such men as Professors H. A. Torrey and T. W. Richards, with whom Adams did his graduate work, did much to stimulate and direct his scientific interest in chemistry. After receiving the Ph.D. degree, he was awarded a college fellowship for study in Europe, where he engaged in research at the University of Berlin under Professor Otto Diels and later at the Kaiser Wilhelm Institute in Dahlem under Professor Richard Willstätter, and he traveled in several countries, including Sweden, Finland, and Russia. The feature of the German laboratories that most impressed Adams was the superiority in laboratory techniques and in library facilities over those in the universities of the United States. When he returned home in 1913, he accepted a postdoctoral fellowship at Harvard under Emeritus Professor C. L. Jackson, but an unexpected opening for an instructor in organic chemistry at Harvard at that time provided him with the opportunity of dividing his efforts between research and teaching. This experience led to a life-long academic career. Following three years as an instructor at Harvard University, his long association with the University of Illinois began, where he has been Assistant Professor, 1916-19; Professor, 1919-26; as successor to W. A. Noyes, Head of the Department of Chemistry and Chemical Engineering, "The Chief," 1926-54; Research Professor, 1954-57; and Professor Emeritus from 1957. He has received honorary degrees from both parent institutions, Harvard in 1945 and Illinois in 1957, and from many other universities.

Professor Adams' first Ph.D. student was Ernest H. Volwiler (1918), past president of Abbott Laboratories, and his last Ph.D. student was Willis E. Cupery (1958), E. I. du Pont de Nemours and Co., who is the son of an earlier (1930) Adams' Ph.D. Adams served as personal research director for

184 Illinois Ph.D. recipients in all and for many postdoctoral research associates and fellows. While the education and training of these chemists were of primary concern, their research problems were selected for interest and potential significance. Innumerable methods of organic synthesis were innovated and determinations of structures of synthetic and natural products were achieved by chemical degradation by Adams and his students. Among the first achievements were the finding that the combination of aldehydes and acid chlorides produced chloroalkyl esters and the recognition that aliphatic acid anhydrides served very effectively for the formation of ketones in the Friedel-Crafts reaction when the correct molar proportions of aluminum chloride were employed. The structures of disalicylaldehyde and dehydracetic acid, which had been puzzles for some decades, were established in the Illinois laboratory. A synthetic method for polyhydroxyanthraquinones was found which involved the use of phthalides and permitted a precise knowledge of the orientation in the resulting products. The method was applied to the synthesis of such natural dyes as emodin, morindone, anthrarufin, and rufiopin. Chaulmoogra oil had been used for centuries as a cure or palliative in the treatment of leprosy. The structures of chaulmoogric and hydnocarpic acids obtained from this oil were clarified in detail and their dihydro derivatives were synthesized. As a sequel, many similar and even simpler organic acids were synthesized and the features required for potent bactericidal properties toward *B. leprae* were determined. Adams recognized the desirability of determining the structure of gossypol, a yellow toxic substance in cottonseed which has been a problem in the cottonseed oil industry. The complex structure of gossypol was revealed, after several years of study by chemical degradation and partial synthesis, as that of a highly substituted binaphthyl. Work on marihuana was undertaken at the request of the Narcotics Bureau in Washington. Adams isolated and identified cannabidiol and showed its relationship to cannabinol and to the physiologically active tetrahydrocannabinols. Synthesis of cannabinol and a series of analogs of tetrahydrocannabinol followed. In the *Senecio* and *Crotalaria* alkaloid series — compounds which cause liver cirrhosis in grazing cattle, sheep, and horses — structures of both the necine base and the necic acid portions of the molecules were established by a combination of chemical degradation and synthesis. The studies on these alkaloids opened up the fields of pyrrolizidine chemistry and large ring diester chemistry in general.

The stereochemistry of molecules in which rotation about a single bond is restricted was investigated by Professor Adams over a period of nearly 30 years and constitutes one of the most extensive systematic studies of steric strain in organic molecules. He defined the conditions in biphenyls which would lead to restricted rotation and showed that this may also occur in bipyrryls, bipyridyls, and other bi-heterocyclic molecules. He and his students synthesized compounds with two points of restricted rotation and demonstrated their existence in the predicted number of stereoisomers. Further exploration revealed other classes of molecules showing the same phenomenon, such as substituted aryl olefins and highly substituted compounds containing the aromatic C-N bond, and, in the latter case, established that electronic effects of *para*

substitution also played a role along with steric effects. Related to these studies were syntheses and reactions carried out on quinone imides, highly reactive substances related to the benzoquinones. Further contributions to stereochemistry lay in the introduction of *l*-menthoxyacetyl chloride and amine bisulfites as resolving agents and to methodology, in the use of oxalyl chloride and the Adams' simplification of the Gattermann aldehyde synthesis.

This brief review of Dr. Adams' scientific accomplishments is intended as representative but not complete. The discovery of the platinum oxide catalyst deserves special mention as a case of serendipity. During a prescribed laboratory preparation of about an ounce of platinum black by the reduction of chloroplatinic acid with formaldehyde and alkali, the casserole containing the mixture broke and the platinum suspension was strewn over an old wooden table top and all over the floor. The student hurried to scrape up the precious metal along with wood splinters, wood surfacing material, and other debris and to report the disaster to Dr. Adams, who has been known for some residual New England frugality. Adams suggested that the mixture be treated with aqua regia and, when this was not fully successful, that the remaining organic material be burned away by addition of sodium nitrate, evaporation, and fusion. By this process a hitherto unreported brown platinum oxide was produced which was reduced readily in the presence of hydrogen to a highly active platinum black catalyst. In the first published account by V. Voorhees and R. Adams [*J. Amer. Chem. Soc.*, 44, 1397 (1922)] the description of the catalyst preparation was abbreviated to fusion of chloroplatinic acid with sodium nitrate. This is still one of the most active and readily prepared platinum catalysts for hydrogenation reactions. Its discovery and the development of a simple low-pressure catalytic hydrogenation apparatus have had a profound effect in synthesis and structure elucidation in organic chemistry and biochemistry. No citation index will ever disclose how many problems on a research and on a technical scale have been solved by the use of Adams' catalyst!

Most of Dr. Adams' research articles, over 400 of them, have been published in this journal. The initial preparation of an article was always an exercise for the student, but the final draft was usually rewritten and always meticulously edited by the Professor. Education of his students only in chemistry and in writing was not sufficient for Dr. Adams. He taught them the behavior of a scientist in the practice of his profession. He was even willing to teach them a bit of poker, although he enjoyed this more later, when they were on an industrial salary. He has also been a believer in a calculated risk with chemical ideas and with people. He has always looked for the positive characteristics in a man which suggested promise, and he was willing to back a man completely when highly qualified. At the time of Dr. Adams' retirement as Head of the Department of Chemistry and Chemical Engineering at Illinois in 1954, each of his Ph.D. students wrote a letter for remembrance. The recurring theme in the letters cites the influence of their Professor upon their lives, this influence following different forms: justification of his faith in them; inspiration by encouragement; transmission of enthusiasm to the solution of difficult research problems; teachings of hard work

and desire for improvement; instruction in how research should be done and how described; generous sharing of knowledge; leadership and integrity; humor and good-natured kidding, candor and pleasure in argument. Digressions from chemistry to many unrelated subjects were the rule for the Saturday or Sunday morning discussions during Adams' week-end rounds of the laboratory. His former students have always appreciated the fact that he followed their careers with lively interest, enjoyed their accomplishments, and was always ready to assist when they came to him with personal or professional problems.

While they were graduate students, especially during the 1920's and 1930's, the problems were mainly financial. An enterprise called Organic Chemical Manufactures was set up at Illinois immediately before the first World War. It was expanded during the 20's to give the students employment during the summer and to provide the starting materials for research. Interest in the students' welfare developed along practical lines in the depression years of the early 30's, when Adams and the Illinois faculty helped students obtain jobs while they were pursuing their degrees and located employment opportunities for them on an individual basis after their graduation. The accent was on helping students in particular and young scientists in general. In considering where and how a private foundation might best contribute to the advancement of basic research, the Alfred P. Sloan Foundation in 1953 called upon a special study group for advice. The group was chaired by Dr. Adams, and their recommendations were accepted by the Foundation Trustees to initiate a Program for Basic Research in the Physical Sciences. Two important features of the program were that research support was to be granted to individuals rather than projects and to "younger scientists of marked promise." In implementation, recent Sloan Foundation fellows have ranged in age from 24 to 33, with an average age of 29. The accent was again on youth when Roger Adams agreed to travel abroad for Du Pont with a view to interviewing and listing the highly promising nontenure academic organic chemists in Germany and England. The company in turn selected the most highly recommended for an invitation to visit the United States for lectures in Wilmington, Delaware, and then at other industrial research laboratories and universities of their choice throughout the country. For many of these foreign chemists, this program provided their first opportunity to visit this country and to meet and exchange research information with their colleagues in science on this side of the Atlantic.

The innovation of new programs for the benefit of organic chemists is exemplified by the initiation of the *Organic Syntheses* series, of which Roger Adams was one of the founders in 1921, and the *Organic Reactions* series, of which he was Editor-in-Chief for 19 years. His conditions for assuming the latter role were that the writers of chapters would not receive royalties and that the original organizing group would be enthusiastic enough to contribute individual chapters to the first volume, which they did. The income from the sale of volumes (reduced prices for students) in these two series, published by John Wiley and Sons, and from the sagacious investment of accumulated capital provides the basis for the Roger Adams Award in Organic Chemistry,

consisting of a gold medal and a cash prize, which is awarded biennially "to recognize and encourage outstanding contributions to research in organic chemistry." Under the sponsorship of the American Chemical Society and with the participation of the Division of Organic Chemistry, the first award was made in 1959 to Professor Derek H. R. Barton of Imperial College, London. The mint edition of the medal was given to Roger Adams as a gift and keepsake. In an interview with Adams, when the first award committee was making arrangements satisfactory to all sponsors, it was clear that he favored the award to be international and to be given, in general, "to a younger man," but with the decision to be left up to each award committee.

Dr. Adams has not been lacking for awards based upon all facets of his career: Wm. H. Nichols Medal, 1927 (New York Section, American Chemical Society); Willard Gibbs Medal, 1936 (Chicago Section, American Chemical Society); Elliott Cresson Medal, 1944 (Franklin Institute); Davy Medal, 1945 (Royal Society of London); T. W. Richards Medal, 1946 (Northeastern Section, American Chemical Society); Priestley Medal, 1946 (American Chemical Society); Honorary Commander of the Civil Division of the Most Excellent Order of the British Empire (C.B.E.), 1948 (British Government); Medal for Merit, 1948 (United States Government); A. W. Hofmann Medal, 1953 (German Chemical Society); Midwest Medal, 1953 (St. Louis Section, American Chemical Society); Perkin Medal, 1954 (Society of Chemical Industry); Charles Lathrop Parsons Award, 1958 (Board of Directors of the American Chemical Society); Franklin Medal, 1960 (Franklin Institute); Gold Medal, 1964 (American Institute of Chemists); National Medal of Science, 1964 (United States Government); John R. Kuebler Award, 1966 (Alpha Chi Sigma); Order of Lincoln for Science, 1967 (Lincoln Academy of Illinois); Certificate of Appreciation, Military Planning Division, Office of Quartermaster General, 1945; Certificate of Honor for Meritorious Service, Chicago Sun, 1946; Testimonial of Appreciation, University of Illinois, 1950; Certificate of Tribute, Look Magazine, 1950; Northwestern University Centennial Award, 1951; Certificate for Meritorious Civilian Service, Department of the Army, 1954; and Gold Plate Award, 1961 (Academy of Achievement). The Chanpaign National Bank, on whose Board of Directors he served for many years, has built a special room where his medals, certificates, and other memorabilia will be on permanent display. (— Alumni Editor.) He has been made an honorary member of the Franklin Institute of Philadelphia, American Institute of Chemists, Phi Lambda Upsilon, Chemists Club of New York, Polish Chemical Society, Spanish Chemical Society, Chemical Society of Japan, Polish Academy of Sciences, Heidelberg (Germany) Academy of Sciences, and the Argentine Chemical Society, an honorary fellow of the Chemical Society (London), Société Chimique de France, and the Swiss Chemical Society, and a member of the American Academy of Arts and Sciences (1927-), National Academy of Sciences (1929-); Council, 1931-37, 1959-62; Chairman of Chemical Section, 1938-41; Foreign Secretary, 1950-54), and the American Philosophical Society (1936-).

A signal honor was accorded to Professor Roger Adams when the Roger Adams Medal was established in his honor. This is presented (with an award

of \$10,000) biennially at the Organic Chemistry Symposium. The organic chemists who have thus far received this award are Professor D. H. R. Barton of Imperial College, Professors R. W. Woodward and P. D. Bartlett of Harvard, the late Professor A. C. Cope of Massachusetts Institute of Technology, Professor J. R. Roberts of the California Institute of Technology, Professor Vladimir Prelog of Eidg. Tech. Hochschule, and Professor H. C. Brown of Purdue — a list of recipients that establishes this award as one of the most prestigious in all chemistry. (— Alumni Editor.)

Many organizations have responded to the leadership and administrative ability of Roger Adams. The growth and achievements of the Department of Chemistry and Chemical Engineering at the University of Illinois during the period 1926-54 will remain a tribute to "The Chief" and to the faith he placed in his staff and students. In the American Chemical Society, Adams was chairman of the Organic Division (1920), a Member of the Board of Directors, 1930-35, 1940-50, President, 1935, and Chairman of the Board of Directors, 1944-50. When he was Chairman of the Board, the Society was reorganized and was provided with a new constitution, in response to the coming of age, the tremendous growth, and the expanded scope of the operations of the Society. It was also during his chairmanship that the income of Universal Oil Products was given to the American Chemical Society and the Petroleum Research Fund was established. During his presidency of the American Association for the Advancement of Science (1950; Executive Committee, 1941-46, 1948-52; Chairman, Chemical Section, 1927; President-Elect, 1949; Chairman, Board of Directors, 1951), funds were being brought together to build the AAAS building in Washington, D.C. For some time he served on the Board of Directors of the Chemurgic Council and during 1951-55 was Vice-President of the International Union of Pure and Applied Chemistry. He has appeared regularly as a member of the biennial IUPAC-sponsored Symposia on the Chemistry of Natural Products. He regrets that many of his old friends attend such international meetings only rarely, but there are always young chemists to meet and new chemistry to be absorbed.

In national service, Roger Adams has had a long and outstanding record. In 1918 he served as a major in the Chemical Warfare Service. He was on the National Research Council Fellowship Board, 1928-40, and on President Roosevelt's Science Advisory Board, 1934-35. During 1941-46 he was a member of the National Defense Research Committee, with responsibility for the supervision of research in chemistry and chemical engineering. He was a member of the National Inventors Council, 1945-63, and a member of the Board of Directors of the National Science Foundation, 1954-60. From fall 1945 to spring 1946 Adams was in Germany as scientific adviser to General Lucius Clay, then Deputy Military Governor. The title of scientific adviser was parallel to those of the economic and political advisers to General Clay and removed the necessity of operation through channels. While in Berlin, Adams was appointed as the United States representative on the technical staff of the Liquidation of War Potential Committee. He also was assigned the duty of answering scientific questions that arose in General

Clay's office either from American or German scientists. He helped direct the resumption of publication of *Beilsteins Handbuch der organischen Chemie* in Germany and later in dissuading the American Chemical Society from removing this publication from Germany and placing its future in the hands of an American board and an American publishing company. In *Gmelins Handbuch der anorganischen Chemie*, the volume on titanium published in 1951 carries the inscription: "To Dr. Roger Adams, Chairman of the Board of Directors of the American Chemical Society, who by his assistance in the rehabilitation of the Gmelin-Institute following World War II and by his untiring efforts in enrolling the support of the American chemical industry helped make the continued publication of the Gmelin-Handbuch possible, this volume is dedicated." Dr. Adams' efforts on behalf of science also extended to the Pacific. In 1947 he headed a seven-man Scientific Advisory Commission to the U. S. Military Government in Japan to recommend to General Douglas MacArthur the most effective way to "democratize the Japanese scientists." In the report submitted, it was suggested among other things that a national organization might be established from representatives selected by the membership from the various national scientific societies. The Japanese created a Science Council patterned more or less after the Commission's recommendation to General MacArthur. As a member of the Second Scientific Advisory Mission to Japan in 1948, Dr. Adams returned to attend and speak at the inauguration of the Japanese Science Council, an organization which has become more and more effective and influential during the past two decades. In his direct personal contacts with scientists in Germany and Japan Dr. Adams gave advice and encouragement with candor and forthrightness, tempered with humor, just as he has always done at home with students, colleagues, and friends. Moreover, he enriched his own knowledge with wide-ranging information on cormorant fishing, pearl culture, geography, and history.

Travel has continued to be a feature of Roger Adams' life. After journeys to Europe and Japan came those to Australia, New Guinea, South America, India, Alaska, and Africa. Photographs and hargains, stamps, and new friends are reminders of these travels. Among the trips taken for pleasure alone, the 1966 photographic safari through the animal preserves of Africa appears to have been the most successful.

On the home scene, Dr. Adams has shared the benefits of his financial acumen, mentioned thus far only in terms of capital gains of *Organic Syntheses* and *Organic Reactions* holdings and poker, with his academic colleagues, especially during his service on the Boards of Trustees of the Teachers Insurance and Annuity Association and of the College Retirement Equity Fund, 1953-57. He also served on the Board of Directors of Abbott Laboratories, 1953-59, and on the Board of Overseers of Harvard University, 1950-52. It is difficult to analyze the special attributes that have made it possible for Dr. Adams to lead multiple lives in education, research, writing and editing, consulting, finance, U. S. government and international affairs, and in professional service. Certainly there is the ability to turn from one problem to the next, quite unrelated, with dispatch and purpose. There is a

lack of sentimentality in dealing with people, yet there is warmth. There is phenomenal ability to remember, whether it be people, melting points, anecdotes, chemistry, or stock quotations. Above all, there are intellect, energy, and enthusiastic interest in the present and future.

It is difficult to think what the past era of chemistry would have been like without Roger Adams. On the threshold of his eighty-first year, we agree with the words of a student: "It is a wonderful things to be able to say, 'Yes, I know Roger Adams.'"

Doctors of Philosophy Trained by Roger Adams

During his career at Illinois, Professor Adams served as thesis adviser for 184 doctoral students. The list of these follows:

1918	Samuel M. McElvain	1927
Ernest Henry Volwiler	Katharine Ogden	Merlin M. Brubaker
	Charles H. Peet	
1919	1924	1928
Ralph Emerson Rindfusz	Herbert O. Calvery	Talbert W. Abbott
	Wallace H. Carothers	James A. Arvin
1920	Emil E. Dreger	Gerald H. Coleman
Herbert E. French	Hermann C. N. Heckel	Leth A. Favies
Ruth E. Merling	Irvin A. Koten	James F. Hyde
Sargent G. Powell	John S. Pierce	Lawrence F. Martin
Lynne H. Ulich	Clifford F. Rassweiler	
1922	Nao Uyei	1929
Otis A. Barnes		Euclid W. Bousquet
Joseph L. Hall	1925	Stanley G. Ford
Arthur W. Ingersoll	Wallace R. Brode	William H. Lycan
John R. Johnson	Courtland L. Butler, Jr.	Wendell W. Moyer
Wilson D. Langley	Ralph A. Jacobson	Wendell M. Stanley
Charles S. Palmer	John W. Kern	Gail R. Yohe
Armand J. Quick	Charles W. Rodewald	
William C. Wilson	Ralph L. Shriner	1930
	Florence D. Stouder	Martin E. Cupery
1923		Robert W. Maxwell
William W. Bauer	1926	Horace Stearns
Waldo B. Burnett	Glen S. Hiers	
John H. Gardner	Carl R. Noller	1931
George D. Graves	Shripati V. Puntambeker	Louis H. Bock
Russell L. Jenkins	Jacob Sacks	Eugene Browning
Ralph J. Kaufmann	Cyprian G. Tomecko	Earl H. Johnson
Wilford E. Kaufmann	William F. Tuley	Leslie J. Roll
		Julius White

1932

Charles B. Becker
Edward M. McMahon
Paul R. Shildneck
Roger W. Stoughton
Eugene H. Woodruff
Han Ching Yuan

1933

Chin Chang
Joseph B. Hale
Ervin C. Kleiderer
Albert E. Knauf
Marion E. Maclean

1934

Shih L. Chien
Harold M. Ginsberg
Donald F. Holmes
Ching Chen Li
Wilbur I. Patterson
Norman E. Searle

1935

Quentin R. Bartz
William E. Hanford
Ernest B. Riegel
Arthur M. Van Arendonk

1936

Bernard S. Friedman
Chi-Yi Hsing
Harold G. Kolloff
Marlin T. Leffler
Rupert C. Morris
Mrs. Meredith P. Sparks

1937

Elbert E. Gruber
Frank C. McGrew
Richard F. Miller

1938

Darrell J. Butterbaugh
George E. Eilerman
Glenn C. Finger
Allene R. Jeanes

Alva J. Johanson
Robert M. Joyce, Jr.
Edward C. Kirkpatrick

1939

Theodore L. Cairns
William R. Dial

1940

Bernard R. Baker
Joe H. Clark
Lester J. Dankert
Marvin H. Gold
Nathan Kornblum
Robert S. Long
Matthew W. Miller
Francis J. Sprules
Howard M. Teeter

1941

Arthur W. Anderson
Laurence O. Binder, Jr.
Donald E. Burney
John T. Fitzpatrick
William D. Fraser
Robert O. Sauer
Hugh W. Stewart
Richard B. Wearn
Lynwood N. Whitehill

1942

Alfred A. Albert
Richard F. Phillips
Carl M. Smith

1943

Richard G. Chasc
John D. Garber
Robert I. Meltzer
Clement W. Theobald
Robert S. Voris
Joseph M. Wilkinson

1944

Ming-Chien Chiang
Charles F. Jelinek
Robert D. Lipscomb

Ralph S. Ludington
John W. Mecorney
Norman K. Sundholm
Zeno W. Wicks, Jr.

1945

Kuang-Hsu Chen

1947

Benjamin F. Aycock, Jr.
Jack S. Hine
Scott MacKenzie, Jr.

1948

Morton Harfenist
Anthony W. Schrecker

1949

Theodore E. Bockstahler
John B. Campbell
Joseph Gordon
James L. Johnson
Viron V. Jones
Nils K. Nelson
Morton Rothstein

1950

Arnold H. Anderegg
John L. Anderson
Bruce E. Englund
Harry F. Kauffman, Jr.
Anant S. Nagarkatti

1951

Edward F. Elslager
Frank B. Hausermann
Karl F. Heumann
Raymond H. Mattson
Kenneth A. Showalter
Charles N. Winnick

1952

Donald S. Acker
Bernard H. Braun
John M. Stewart
Thomas E. Young

1953
Dale C. Blomstrom
Rolland W. P. Short
Karl V. Y. Sundstrom

1954
Richard S. Colgrove
John W. Way

1955
L. Whitaker

1956
E. L. DeYoung
J. E. Dunbar
H. H. Gibbs
M. J. Gortatowski

G. R. Johnston
M. D. Nair
H. J. Neumiller

1957
L. M. Werbel

1958
W. E. Cupery

Awards and Honors to Alumni and Staff

Illinois Inorganic Chemists Sweep the Field

It was announced at the Fall Meeting of the American Chemical Society that Professor T. L. Brown has been selected for the A.C.S. Award in Inorganic Chemistry, sponsored by Texas Instruments, Inc. This award was established to recognize and encourage fundamental research in the field of inorganic chemistry by persons under 45 years of age. The award winner must have accomplished outstanding research in the preparation, properties, reactions,



T. L. Brown



John C. Bailar, Jr.

or structure of inorganic substances. Professor Brown was chosen for the award on the basis of his work with metallo-organic compounds, especially the lithium alkyls.

It was also announced at the American Chemical Society meeting that Professor John C. Bailar, Jr., has been chosen to receive the A.C.S. Award for Distinguished Service in the Advancement of Inorganic Chemistry, sponsored by Mallinckrodt Chemical Works. The person who is selected to receive this award must be a member of the American Chemical Society and must have demonstrated extensive contributions to the advancement of inorganic chemistry. These contributions may have been made through teaching, writing, research, or administration.

Both of these awards will be presented at the Spring Meeting of the American Chemical Society in Boston next spring.

On October 28 Professor Bailar received the Midwest Award, granted by the St. Louis Section of the American Chemical Society for meritorious work in chemistry, done while the recipient was residing in the Midwest.

Gutowsky Chairman of Gordon Trustees

Professor H. S. Gutowsky, Head of the Chemistry Department and Director of the School of Chemical Sciences, has been elected Chairman of the Board of Trustees of the Gordon Research Conferences. The number of these conferences has increased greatly in recent years, and there are now seventy of them. They meet during the summer in the buildings of preparatory schools and small colleges in New England, Wisconsin, and California. Each meeting place is used throughout the summer, and so can accommodate twelve or thirteen research conferences.

The Board of Trustees, which Professor Gutowsky will head for the next three years, has general supervision of topics of the conferences, physical arrangements, and financial aspects of the entire operation.



H. S. Gutowsky



Robert L. Metcalf

Metcalf Wins American Chemical Society Award

Professor Robert L. Metcalf, Professor of Zoology, Entomology, and Agricultural Entomology, and Head of the Department of Zoology on the Urbana campus, has been chosen to receive the A.C.S. International Award for Research in Pesticide Chemistry, sponsored by Burdick and Jackson Laboratories, Inc. This award is made in recognition of his outstanding studies on the relationship of the structure of pesticides to their effectiveness and their biodegradability.

Dr. Metcalf did his undergraduate work and took a master's degree at Illinois (B.S., 1939; M.S., 1940) while his father was Head of the University of Illinois Entomology Department. He received his doctor's degree in entomology at Cornell in 1943 and assumed his present position here in 1969. In the meantime, he spent three years as an entomologist with the Tennessee

Valley Authority and seven years with the Citrus Experiment Station in Riverside, California. From 1953 to 1969, he was Professor of Entomology at the University of California at Riverside, and from 1962 to 1969, he served also as Vice-Chancellor of the University.

With Professor Metcalf receiving the 1972 Award for Research in Pesticide Chemistry, it becomes an all-Illinois affair, for both partners of the sponsoring organization are Illinois alumni. Dr. O. Z. Burdick received a master's degree in organic chemistry at Illinois in 1929, and Dr. William G. Jackson was awarded the M.S. degree in 1943, and the Ph.D. degree in 1945, also in organic chemistry.

Fresenius Award to Flygare

The Fresenius Award of Phi Lambda Upsilon was presented to Professor Willis H. Flygare of the Chemistry Department, at the meeting of the American Chemical Society in Los Angeles last spring. This award recognizes "outstanding contributions to chemistry through research, education, or administration in the fields of pure and applied chemistry" by persons who have not reached their thirty-fifth birthday at the time of nomination.

The citation which accompanied the award and which follows was read by Professor H. S. Gutowsky:



Willis H. Flygare

It is certainly a pleasure for me to be here today on the occasion of presenting Professor Willis H. Flygare with the Fresenius Award of Phi Lambda Upsilon, because now I can congratulate myself publicly for having been astute enough to offer him a position at the University of Illinois. This was ten years ago when he was finishing up his Ph.D. at Berkeley with Professor W. D. Gwinn on bent bonds.

Since then, Bill Flygare has accomplished a great deal. In fact, he is the most dynamic, the most original, the most creative young chemist I know. He has demonstrated his ability to contribute significantly to our knowledge of chemistry in a really amazing variety of ways. He has developed a new technique to measure the molecular Zeeman effect and has used it to determine molecular quadrupole moments. He has improved and refined a known technique in his high resolution microwave work and used it in many new and clever ways to obtain results of interest and importance to a wide variety of scientists. Moreover, his contributions to teaching help dispel the myth that dedication to research is at the expense of undergraduate teaching.

For example, he was the driving spirit and innovator behind the initiation and development of our undergraduate core laboratory programs, an "integrated" three-semester sequence of laboratory courses beyond the freshman year. His enthusiasm and energy made the difference between success and failure of the summer study by a small group of our faculty which developed the basic concepts and approach of what is now a very successful program. His own formal teaching has centered on a one-year course in advanced physical chemistry for seniors and beginning graduate students. The course is not required, so it is a tribute to the quality of his teaching that a large majority of our students, from all areas of chemistry, take the course, which is not noted for being easy.

As a teacher of research, he is without a peer in his age group in our department. During the nine years with us, he has attracted many of our best students in chemical physics, including 12 senior research students, 13 graduate students who have completed their Ph.D.'s, and 14 postdoctorates from throughout the world. His group presently has 10 graduate students and 3 postdocs.

His administrative talents have been displayed so far mainly in internal operations of a committee of informal variety. Nonetheless, he has been a major driving force in efforts to improve the quality of our graduate students and faculty, the main mechanisms being our committees on Graduate Admissions and Appointments and on Staff, first as a committee member and more recently as Chairman. Furthermore, he handles our participation in the Chemical Physics program and has been largely responsible for strengthening and publicizing it to the point where it's one of the best in the country. (Or at least I think so!)

Finally, he has time and energy left over for an engaging wife, four bright-eyed, energetic children, and hobbies such as family camping expeditions, cruises on the Great Barrier Reef, and being one of the toughest guards in the faculty-graduate student basketball league.

I'm proud to be here to read this citation of some of the reasons he's receiving the Fresenius Award.



Gregorio Weber

Professor Weber Appointed to the Center for Advanced Study

Professor Gregorio Weber, of the Department of Biochemistry, has been appointed to a professorship in the University's Center for Advanced Study. This is the highest honor which the University can bestow upon any of its faculty members. Professorships in the Center are conferred upon the most distinguished, most productive, and most widely recognized scholars on the

faculty. The twelve professors in the Center have been chosen from a wide spectrum of University departments, ranging from English literature to physics. The School of Chemical Sciences is represented by three members: Professor Nelson Leonard from the Department of Chemistry, Professor Harry G. Drickamer from the Department of Chemical Engineering, and now, Professor Weber.

Professor Weber was born in Buenos Aires, Argentina, and received an M.D. degree there in 1943. Four years later, he was granted the Ph.D. degree in Biochemistry at Cambridge University. He remained at Cambridge as a staff member until 1952 and was then on the faculty at the University of Sheffield until 1962, when he came to the University of Illinois. He is an international authority on the relationship between the structure of proteins and their functions. In the 1950's, Professor Weber began his pioneering work on the use of fluorescent probes in the study of protein structure, and he has made many important contributions through this technique. Much of our knowledge of the size, shape, and flexibility of protein molecules has come from his work.

Sloan Fellowships to Beattie and Coates

Two members of the U. of I. Chemistry Department have been awarded fellowships by the Alfred P. Sloan Foundation. These fellowships are awarded to promising young scientists to help them develop their research programs. Each fellowship is tenable for two years.

Dr. James K. Beattie received the bachelor's degree from Princeton in 1961, the master's degree from Cambridge University in 1963, and the doctor's degree from Northwestern in 1966. He joined the Illinois staff as an



James K. Beattie



Robert M. Coates

assistant professor that year. His scientific interests lie in oxidation-reduction and electron exchange reactions of inorganic coordination compounds.

Dr. Robert M. Coates earned his bachelor's degree at Yale in 1960 and his doctor's degree at the University of California in Berkeley, in 1964. He is thirty-two years old and has been a member of the Illinois staff for six years. His research centers on the synthesis and chemistry of terpenoids and other naturally-occurring organic compounds.

Guggenheim Fellowships to Eckert and Flygare

The John Simon Guggenheim Foundation has selected two members of the School of Chemical Sciences from a list of 354 nominees for fellowships this year. These are Dr. Charles A. Eckert of the Department of Chemical Engineering and Dr. Willis H. Flygare of the Department of Chemistry. Two other Illinois faculty members were also chosen — Dean Robert B. Downs of the School of Library Administration and Professor Walter L. Creese of the Department of Architecture.

During his sabbatical year, Dr. Eckert will be undertaking studies in chemical kinetics, especially in the area of applied physical-organic chemistry, to gain more knowledge of basic chemistry to study applications to engineering problems involving chemical reactions.

Dr. Flygare will study the structure of liquids. He is particularly interested in the hydrodynamic properties of pure liquids studied by light scattering in both the linear and non-linear regions of response. This work also includes the study of non-linear responses at surfaces of solids.

Connor Receives Distinguished Alumni Award

Dr. Ralph Connor, Vice President, Director, and Chairman of the Executive Committee of the Rohm and Haas Company of Philadelphia, is one of three alumni who were selected to receive Distinguished Alumni Awards this year.



Charles A. Eckert



Ralph Connor

Ralph Connor was born and raised in Newton, Illinois, so he didn't have to go far from home to go to college. He graduated from the Chemistry Curriculum at the U. of I. in 1929, after which he did graduate work at Wisconsin, where he received the Ph.D. degree in 1932. He taught at Cornell and the University of Pennsylvania, but when the United States became involved in World War II, he was granted leave from Pennsylvania to work in the United States Office of Scientific Research and Development. By 1945, he was Chief of the Division of Explosives. His war work gave him a familiarity with industrial chemistry, which he found interesting and challenging. Instead of returning to the University of Pennsylvania, he accepted the position of Associate Director of Research at Rohm and Haas. Three years later, in 1948, he became a Director and Vice President of the Company, in charge

of research. He became Chairman of the Board in 1960, and Chairman of the Executive Committee in 1970.

Dr. Connor has been active in the International Union of Pure and Applied Chemistry, and in the American Chemistry Society. He served the latter as a member of the Board from 1954 to 1965, and was Chairman from 1956 until 1958. In 1967, he received the Priestley Medal of the American Chemical Society, in 1968, the Chemical Pioneer Award of the American Institute of Chemists, and, in 1970, the Outstanding Civilian Service Medal from the Department of the Army. He has received honorary doctorates from the Philadelphia College of Pharmacy, the University of Pennsylvania, the Polytechnic Institute of Brooklyn, and Lehigh University.

Schaefer Becomes President of University of Arizona

An Illinois alumnus, Dr. John Paul Schaefer (Ph.D. 1958), assumed the presidency of the University of Arizona on July 1 of this year. He was previously Dean of the College of Liberal Arts at Arizona and, before that, Head of the Department of Chemistry.

Dr. Schaefer did his undergraduate work at the Polytechnic Institute of Brooklyn, where he not only made an outstanding scholastic record but also starred in track and played on the basketball and baseball teams.

Following the receipt of his doctor's degree, President Schaefer spent one year on a National Science Postdoctoral Fellowship at the California Institute



Dr. and Mrs. John P. Schaefer

of Technology and one year as a staff member at the University of California before he joined the faculty at Arizona.

Dr. Schaefer is a member of Sigma Xi, the American Institute of Physics, the American Association for the Advancement of Science, and the American Chemical Society. His chief scientific interests are in the field of physical-organic chemistry.

When the search for a president at Arizona began, the president of the Board of Regents laid down the rule that the new president of the University must be research oriented, active in the community, and a family man whose wife is active in community affairs. John passed the first hurdle on the basis of his published papers and the second on the bases of his work in the Tucson branch of the Audubon Society and his interest in ecology.

This brings us to Mrs. Schaefer, who is also a chemist and an Illinois alumna. She came to Illinois as Helen Schwarz in 1955 and did graduate work in physical chemistry here until 1958, when she left to be married. She received a master's degree in 1957. After moving to Arizona, she continued her interest in chemistry for some time, but the birth of two daughters and a growing interest in community affairs left her little time for chemistry. She has been involved in the Tucson Council on the Arts, the League of Women Voters, and the American Association of University Women.

Brandt Becomes President of Virginia Commonwealth University

Dr. Warren W. Brandt (Ph.D., 1949) was inaugurated as President of Virginia Commonwealth University in November, 1970. Dr. Brandt took his Ph.D. degree in analytical chemistry at Illinois in 1949, working under the direction of Professor G. F. Smith. He was a member of the staff of Purdue University from that time until 1961. During the 1958-59 school year, he held a Guggenheim Fellowship and spent that year in research at Oxford University. In 1961, he moved to Kansas State University as Head of the Chemistry Department; after one year of service there, he was promoted to the Associate Deanship of the College of Arts and Sciences. The following year, he moved to Virginia Polytechnic Institute as Vice-President and Dean of the Graduate School.



Arnold O. Beckman



W. J. Haines

Dr. Arnold O. Beckman, B.S. in Chemical Engineering, 1922, M.S. in Physics, 1923 (Ph.D., California Institute of Technology), founder of Beckman Instruments, Inc., has been chosen by the California Museum of Science and Industry as California's "Industrialist of the Year." Dr. Beckman established his instrument company in 1935 and, through it, has exerted a tremendous influence on chemical research. He was selected for the Illini Achievement Award in 1960, and is a member of the Advisory Board of the U. of I. Center for Advanced Study. At the June commencement exercises at Whittier College, Dr. Beckman received an honorary Doctor of Science degree.

Dr. W. J. Haines (Ph.D. in Biochemistry, 1943) has been elected Chairman of the American Section of the Society of Chemical Industry. Bill is a Director and member of the Executive Committee of Johnson and Johnson.

Dr. John McWhirter (B.S. in Chemical Engineering, 1959) (M.S. and Ph.D., Pennsylvania State University) was featured in the "Chemical Innovator" series in the April 28 issue of *Chemical and Engineering News*. He is manager of the Waste Water Treatment Department at Union Carbide. He has developed methods of treating waste water with oxygen. His system has recently been installed in the sewage treatment plants of several cities and is proving to be highly successful.

Dr. Richard L. Kenyon, A.B., 1938 (Ph.D., University of North Carolina), Director of the American Chemical Society's Division of Public Affairs and Communication, has been awarded the Honor Scroll of the District of Columbia Institute of Chemists. He was honored for his outstanding work as the director of one of the world's largest scientific information systems. The District of Columbia Institute of Chemists is the Washington chapter of the American Institute of Chemists.

Professor Robert S. Sprague, Ph.D., 1949, was selected this spring to receive the Donald B. and Dorothy L. Stabler Foundation Award for Excellence in Teaching at Lehigh University. The award carries an honorarium of \$3,000. It is particularly significant that, although Professor Sprague teaches general chemistry which is taken largely by freshmen, he was selected for this honor by vote of the senior class.



Richard L. Kenyon



James F. Hyde

Dr. James F. Hyde, Ph.D., 1930, was awarded the Perkin Medal this spring for his work on silicones. This medal is the highest honor of the Society of Chemical Industry. He began the study of silicone plastics in 1931 at the Corning Glass Works and, although he has passed the normal retirement age of sixty-five at Dow-Corning, he is still continuing his work with them. His research led to the founding of the Dow Corning Company and the beginning of an industry which now has sales of about \$180,000,000 in the United States alone.

Dr. Robert C. Brasted, Ph.D., 1942, Professor of Chemistry and Director of the General Chemistry Program at the University of Minnesota in Minneapolis, has been selected as one of the four recipients of Awards for Undergraduate Teaching for 1971. These awards are sponsored by the Manufac-

turing Chemists Association. Each award carries with it a medal, a citation, and \$1,000. Bob was active in organizing the National Science Foundation Summer Institutes, and has been intimately associated with the American Chemical Society's Visiting Scientist Program and the Advisory Council on College Chemistry. He is currently a member of the American Chemical Society's Council Committee on Chemical Education.



Wendell M. Stanley



Edward A. Doisy

Dr. Wendell M. Stanley, Ph.D., 1929, Nobel Prize winner and Professor of Molecular Biology at the University of California (Berkeley), recently was made a Foreign Associate Member of the French Academy of Science of the Institute of France.

Professor Stanley died of a heart attack in Spain on June 15, 1971. He was in Salamanca to attend a conference on viruses.

The First Doisy Lectures

Last year, Dr. Edward A. Doisy (A.B., 1914; M.S., 1916; hon. D.Sc., 1960) set up a fund of \$25,000 establishing a lectureship in biochemistry in honor of his mother, Mrs. Ada Alley Doisy. The Edward P. Doisy family lived in Hume, Illinois, but moved to Champaign to facilitate college attendance for Edward A. and his younger sister, Roberta (later, Mrs. Roberta Doisy Rosecrans, who was for some years Assistant Dean of Women at the University). After receiving two degrees at the University of Illinois, Edward took a Ph.D. at Harvard, then joined the staff of the Washington University School of Medicine. In 1923, he became Head of the Department of Biochemistry in the St. Louis University School of Medicine — a position which he held for forty-two years. In 1943, Dr. Doisy shared the Nobel Prize in physiology and medicine for his part in the isolation and synthesis of Vitamin K. He has received eight honorary doctor's degrees and many other honors.

The first Ada Alley Doisy lectures were given on May 11 and 12 at U. of I. by Dr. Charles Huggins and Dr. Elwood V. Jensen, both of the Ben May Laboratory for Cancer Research at the University of Chicago. Dr. Huggins is Director of the Ben May Laboratory and the William B. Ogden Distinguished Professor of Surgery at the University of Chicago. In addition to his position in the Ben May Laboratory, Dr. Jensen holds the Charles Hayden Foundation Research Professorship in Physiology at the University of Chicago.

In his Doisy lecture, Professor Huggins spoke on "The Transformation of Animal Cells." Professor Jensen's title was "The Pattern of Hormone Receptor Interaction."

Scholastic Honors and Awards

Undergraduate Freshmen Scholarships

The School of Chemical Sciences continued the \$500 scholarship award to entering freshmen for 1971-72. The Roger Adams Fund increased from \$33,000 to \$56,000 during the year, and the endowment income will support four of the scholarships for next year. The Audrieth Fund will provide partial support for an additional one, three will be funded by a Chrysler Corporation Grant, and five by money from the DuPont Grant-in-Aid.



1971 Scholastic Award Winners

These scholarships are awarded strictly on the basis of academic achievement in secondary school, without regard to financial need. Competition is on the highest level; those receiving the awards represent the most capable college freshmen in Illinois. We appreciate greatly the loyalty and generosity of our alumni and the industrial funds that make it possible for us to make these scholarships available. They form the backbone of our public appeal for the interest of these capable students.

Scholarship Recipients 1971-72

Terence Lenhardt — Thornridge High School, Dolton, Illinois
Robert Scott — Morris Community High School, Morris, Illinois
Thomas Fielder — Wheeling High School, Wheeling, Illinois
Michael Lied — Washington Community High School, Washington, Illinois
Bruce Copeland — Mexico Senior High School, Mexico, Missouri
Bruce Juhlin — Belvidere High School, Belvidere, Illinois
Richard Lucas — Woodruff High School, Peoria, Illinois
Linda Petzold — Argo Community High School, Summit, Illinois
Todd Savides — Rich East High School, Park Forest, Illinois
Raymond Janevicius — Kankakee Senior High School, Kankakee, Illinois
George Schriver — Sherrard Community Unit High School
David Wells — Prospect High School, Mt. Prospect, Illinois
Timothy Kluge — East Peoria Community High School, East Peoria, Illinois

Agnes Sloan Larson Awards

In the fall semester, the School presents \$200 Agnes Sloan Larson awards to the five sophomores in Chemistry who have achieved the highest grade-point averages for their freshman year.

The awards are made possible by an annual grant to the University Foundation by Dr. Alfred Sloan, B.S. '22, in honor of his sister, Mrs. Agnes Sloan Larson, B.S. '19. Mrs. Larson was a chemistry major and class valedictorian.

The winners were as follows:

Debora Jones — Peoria, Illinois
Michael Finkelstein — Carthage, Illinois
Cynthia Haney — Wheeling, Illinois
Kevin Klotter — Park Ridge, Illinois
Richard Lind — Princeton, Illinois

Other Honors and Awards

In the spring semester a series of honors and awards is made in the presence of the Chemistry 108 class.

Elliott Ritchie Alexander Award. (Kevin Albert Klotter) A book of the student's choice, with inscription of that student's name on a trophy which is on permanent display, is awarded each year to the student in chemistry or chemical engineering who in his first two years at the University has attained the highest scholastic average.

American Institute of Chemists Award. (W. Richard Leopold III and Andrew W. Raczowski) Two certificates are awarded by the Chicago chapter of the American Institute of Chemists each year to the graduating seniors in chemistry and chemical engineering who are most outstanding in scholarship, personal integrity, and leadership.

Chemical Rubber Company Achievement Award. (Debra Lee Moore) A copy of the *Handbook of Chemistry and Physics* is presented each year to the outstanding student in freshman chemistry.

Kendall Award. (W. Richard Leopold III and James L. Kesler) A monetary award is given each year to a student in chemistry or chemical engineering who is a member of Phi Lambda Upsilon and shows the greatest promise in his chosen field.

Merck Award. (Raymond C. Vaseleski and Daniel R. Schoenberg) Two copies of the *Merck Index* are presented each year, one to an outstanding senior in the chemistry curriculum and one to an outstanding senior in the chemical engineering curriculum.

Worth Huff Rodebush Award. (James P. Yesinowski) A substantial monetary award is given in the second semester each year to the most able senior who has demonstrated his intention to make a career of chemistry or chemical engineering.



1970 Agnes Sloan Larson Winners

Phi Lambda Upsilon Cup. (Richard Ellis Lind and Todd Steven Brethauer) Alpha chapter of Phi Lambda Upsilon, honorary chemical society, awards a cup annually to the sophomore man who has the highest scholastic average among the students in the curricula of chemistry and chemical engineering. The cup is on display in the main hall of the Chemistry Annex.

American Institute of Chemical Engineers Award. (Joseph Lee Wilhelm) This award, which includes a certificate, a two-year subscription to the *A.I.Ch.E. Journal*, and a pin is presented to the chemical engineering student who has attained the highest grade-point average during his freshman and sophomore years.

Alpha Chi Sigma Plaque. (Dominic M. Meldi) Zeta chapter of Alpha Chi Sigma, chemical professional fraternity, each year recognizes the freshman man who attains the highest scholastic average for his first semester of work in the curriculum in chemistry or chemical engineering. The selectee's name is engraved on a plaque displayed in the Chemistry Library.

Iota Sigma Pi Prize. (Joan M. Yanov) A cash prize of \$20 is awarded each year by the honorary chemical sorority, Iota Sigma Pi, to the woman in the senior class who has the highest scholastic average in her University work with chemistry as her major subject.

Reynold Clayton Fuson Award. (David Anthony Damon) A substantial award is given to the student in chemistry or chemical engineering, who, through the first semester of his senior year, has made the most outstanding academic improvement.

Graduate Student Admissions

Each of the past several years has presented a somewhat different set of problems to the Admissions Committee. In the application-admissions period which has just ended, the national economic recession, a widespread disenchantment with technology, a highly publicized over-supply of chemistry Ph.D.'s, and the Selective Service lottery selection procedure (with its attendant elimination of occupational deferments) seemed to interact to decrease the total number of applications for graduate study in chemistry. Yet in review, the overall checks and balances have worked out very well and in our favor.

Although we received only half as many applications as we did two years ago, we found that self-selection has decreased the percentage of unqualified and marginal applicants, while those with strong motivation for graduate study were seeking admission.

Many of the same factors which decreased the number of applicants also worked to decrease the number of new students the School of Chemical Sciences could admit for 1971-72. We are under a strict Graduate College

quota which we may not exceed; federal fellowships and traineeship support have been curtailed almost to the vanishing point for Chemistry and Chemical Engineering, and are barely holding their own in Biochemistry, and state-funded fellowships available to us have been cut. Industry has recognized the plight of graduate education, and in spite of their own financial problems, companies have been very loyal in maintaining their grants. For this we are very thankful.

Our final on-board entering class is slightly smaller than last year; yet the quality of the class has been maintained at the high levels achieved in the past. Although the numerical grade-point average is only one of the measures for admittance, it is a visible and therefore useable figure. The overall G.P.A. for the entering class is 4.6/5.00.

Employment of Graduates

The employment picture has been slow in clarifying over a most difficult and frustrating job-seeking season. We feel that our selective admissions policy and the rigorous academic course and research educational programs have been correct and are paying off now. The proportion who will be in post-doctoral positions is slightly higher than normal, and those going into teaching and industry is a little below normal. Position selectivity has been much less than a few years ago, yet almost all of the graduates are pleased with the final outcome. In the face of the most competitive job market in years for Chemistry graduates, our record is encouraging.

Editorships Held by Faculty

Fifteen members of the School of Chemical Sciences presently hold a total of thirty responsible editorial positions for domestic and foreign scientific publications. This represents only a fraction of the contributions to the scientific publication media that have been made through the years by these men and others in the School.

D. E. Applequist	Board of Editors	Journal of Organic Chemistry
J. C. Bailar, Jr.	Editorial Board	Bioinorganic Chemistry
		Journal of Inorganic Chemistry and Nuclear Chemistry
		Inorganic and Nuclear Chemistry Letters
		Revue de Chimie Minérale
		Inorganica Chimica Acta Reviews

T. L. Brown	Associate Editor Editorial Board	Inorganic Chemistry Journal of Organometallic Chemistry Journal of Molecular Structure
D. Y. Curtin	Advisory Board	Organic Reactions
H. G. Drickamer	Associate Editor	Journal of Solid State Chemistry Journal of Nonmetals
W. H. Flygare	Associate Editor	Journal of Chemical Physics
I. C. Gunsalus	Editorial Board	Biochemical and Biophysical Research Communications Analytical Biochemistry Bacteriological Reviews Federation Proceedings
H. S. Gutowsky	Associate Editor	Journal of Molecular Spectroscopy A.C.S. Monographs McGraw-Hill Encyclopedia of Science and Technology
T. J. Hanratty	Advisory Group	Prentice Hall Series on Chemical and Physical Engineering
H. A. Laitinen	Editor	Analytical Chemistry
N. J. Leonard	Board of Editors	Journal of the American Chemical Society
H. V. Malmstadt	Advisory Board	Analytical Chimica Acta
K. L. Rinehart, Jr.	Editorial Board Editor	Journal of Antibiotics Prentice-Hall, Inc., Foundations in Modern Organic Chemistry Series
G. Weber	Editorial Board	Journal of Biological Chemistry
J. W. Westwater	Editorial Advisory Board Advisory Editorial Board	International Journal of Heat and Mass Transfer Heat Transfer Soviet Research

Ph.D. Recipients in February 1971

Bastron, Victor Christian Chemical Engineering Dr. H. G. Drickamer
 "Reactions at High Pressures in Organic Solids"
 Esso Research Laboratory, Baton Rouge, Louisiana 70800

Sawin, Steven Paul Chemical Engineering Dr. C. A. Eckert
"Pressure and Solvent Effects on a Menschutkin Reaction"
Union Carbide Corporation, Box 8361, Building 773, Room 105, South
Charleston, West Virginia 25303
710 Regency Drive, Charleston, West Virginia 25314

Shoemaker, Richard Lee Chemical Physics Dr. W. H. Flygare
"Molecular Zeeman Effect Studies and Infrared-Microwave Double Res-
onance"
IBM Research Laboratories, Monterey and Cottle Roads, San Jose, Cali-
fornia 95100

Strange, Ronald Stephen Inorganic Dr. R. S. Drago
"An Approximate Self Consistent Field Method For Transition Metal
Complexes"
Department of Chemistry, Illinois Institute of Technology, Chicago, Illinois
60607
9727 Lorraine Drive, Apartment 3, Countryside, Illinois 60525

Switzer, William Lawrence, III Physical Dr. J. P. Hummel
"Positron Annihilation in N-Pentane Solutions of Galvinoxyl Free Radical"
Beckman Instrument Company, Fullerton, California 92631
Apartment C, 253 South Garfield, Corona, California 91720

Ph.D. Recipients in June 1971

Amore, Francis Joseph Analytical Dr. A. M. Hartley
"An Electrochemical Study of the Adsorption Behavior of Flavin Mononu-
cleotide at a Mercury Electrode"
Department of Public Health, 2125 South First Street, Champaign, Illinois
61820

Basalay, Robert Joseph Organic Dr. J. C. Martin
"Disolvation of a Carbonium Ion, a Pentacoordinate Carbon Atom"
Amoco Chemicals Corporation, Naperville, Illinois 60540

Brauer, David John Inorganic Dr. G. D. Stucky
"Structural Investigations of Organoaluminum Compounds and Ion-Pairs"
Max-Planck-Institut für Kohlenforschung, Mülheim a.d. Ruhr, Germany

Chen, Judy Soong Organic Dr. R. M. Coates
"A Study of the Rearrangement of the Longicamphenyl System"
Department of Chemistry, University of South Florida, Tampa, Florida 33602

Eastes, Walter Lawson Physical Dr. D. H. Secret
"The Calculation of the Scattering of an Atom from a Vibrating Diatomic
Rotator"
600 East French Broad, Brevard, North Carolina 28712

Lundquist, Ronald Evald Biochemistry Dr. J. M. Clark, Jr.
"Characterization of the Amino Termini of *In Vitro* Polypeptides Related
to Satellite Tobacco Necrosis Virus"
Department of Cell Biology, Albert Einstein Medical School, Morris Park
Avenue, Bronx, New York 10451
230 Pelham Road, Apartment 11, New Rochelle, New York 10805

Lutsky, Barry Neal Biochemistry Dr. G. J. Schroepfer, Jr.
"Studies on Proposed Intermediates in the Biosynthesis of Cholesterol"
Schering Corporation, 60 Orange Street, Bloomfield, New Jersey 07003
492 Joralemon Street, Belleville, New Jersey 07109

McDonald, Jerome Joseph Organic Dr. N. J. Leonard
"Aldenine Modification; Activity and Incorporation of Cytokinin"
Sloan-Kettering Institute for Cancer Research, 145 Boston Post Road, Rye,
New York 10580

Peace, George Earl, Jr. Analytical Dr. J. Jonas
"High-Resolution Nuclear Magnetic Resonance Studies of Gases"
Department of Chemistry, Lafayette College, Easton, Pennsylvania 18042
360 Taylor Avenue, Apartment 16E, Easton, Pennsylvania 18042

Penley, Michael William Biochemistry Dr. J. M. Wood
"The Mechanism of Cobalamin-Dependent Methyl Transfer"
University of Illinois Medical School, Chicago, Illinois 60607

Poling, Bruce Earl Chemical Engineering Dr. C. A. Eckert
"The Effect of Pressure on a Catalyzed Diels-Alder Reaction"
Department of Chemistry, University of Missouri, Rolla, Missouri 65401

Synder, Robert Bruce Chemical Engineering Dr. C. A. Eckert
"The Rate of a Chemical Reaction at a Liquid-Liquid Critical Point"
2017 Philo Road, Apartment 10, Urbana, Illinois 61801

Sproul, Gordon Duane Inorganic Dr. G. D. Stucky
"Structures and Properties of Some Iron Triad Complexes. Part One:
Iron(III) Halide and Nickel(II) Aquo Halide Complexes. Part Two:
Nickel(II) and Nickel(IV) Pyridinedioxime Complexes"
Tulane University, New Orleans, Louisiana 70118

Stickler, Joseph Collier Organic Dr. W. H. Pirkle
"Some Aspects of the Chemistry of 4-Substituted-1,2,4-Triazoline-3,5-Diones"
507 North Seventh Street, P.O. Box 404, St. Joseph, Illinois 61873

Tipton, Craig Daniel Organic Dr. K. L. Rinehart
"Structural and Synthetic Studies of the Antibiotics Lomofungin and Gel-
danamycin"
The Lubrizol Corporation, Cleveland, Ohio 44101
185B Meadows Drive, Painesville, Ohio 44077

Worley, Jimmy Weldon Organic Dr. P. Beak
"The Reaction of Phenyllithium with Aryl Thioketones, Dithioesters, and
Trithiocarbonates; Thiophilic Addition"
Department of Chemistry, Wesleyan University, Middletown, Connecticut
06457
20 Summit Place, Middletown, Connecticut 06457

Yamaye, Makoto Organic Dr. J. C. Martin
"ortho-Bridged Triarylmethyl Derivatives"
1995 Hirayama, Hino-Shi, Tokyo, Japan
Kawatana-Machi, Higashi-Sonogi-Gun, Nagasaki-Ken, Japan

Ph.D. Recipients in October 1971

Anderson, John Leonard Chemical Engineering Dr. J. W. Westwater
"The Characterization of Mass and Charge Transport: Development of a
Model Membrane"
School of Chemical Engineering, Olin Hall, Cornell University, Ithaca,
New York 14850
2 Candlewyck Drive, Apartment C-3, Ithaca, New York 14850

Arhart, Richard James Organic Dr. J. C. Martin
"Compounds of Sulfur (III) and Sulfur (IV): Oxysulfonium Radicals and
Sulfranes"
Department of Chemistry, University of Alberta, Edmonton, Alberta, Canada

Brooks, Joseph Jordan Inorganic Dr. G. D. Stucky
"Bonding and Stereochemical Studies of Unsaturated Organolithium Compounds"

Aerospace Research Laboratory, Wright-Patterson AFB, Ohio
10105 Preston Highway, Louisville, Kentucky 40229

Bruner, Harold Stanley, Jr. Inorganic Dr. J. C. Bailar, Jr.
"The Isomerization and Selective Hydrogenation of Olefins Catalyzed by Some Transition Metal Complexes"

Department of Chemistry, University of California at Los Angeles, Los Angeles, California 90052

Chou, Iah-Nan Biochemistry Dr. I. C. Gunsalus
"Regulation and Some Genetic Aspects of Arginine Biosynthesis in *Pseudomonas putida*"

Department of Biochemistry, University of Illinois, Urbana, Illinois 61801
2106 Orchard Street, Apartment 302, Urbana, Illinois 61801

Eckelman, Larry Dean Chemical Engineering Dr. T. J. Hanratty
"The Structure of Wall Turbulence and Its Relation to Eddy Transport"
Environmental Protection Agency, Indiana District Office, 111 East Diamond Avenue, Evansville, Indiana 47711

Everling, Bruce Walter Chemical Physics Dr. D. H. Secrest
"A Method for Performing Exact Quantum Mechanical Reactive Scattering Calculations"

Department of Chemistry, University of Connecticut, Storrs, Connecticut 06278

Windham Heights, Apartment 203-F, Scott Road, Willimantic, Connecticut 06226

Hartford, Allen, Jr. Physical Dr. J. R. Lombardi
"High Resolution Electronic Spectroscopy of Substituted Benzenes: Rotational Analyses and Stark Effects"

University of California at Berkeley, Berkeley, California 94720
20317 Wisteria Street, Castro Valley, California 94720

Heines, Henry Chemical Engineering Dr. J. W. Westwater
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