

# Association of Indiana University Chemists

## NEWSLETTER

Indiana University



1970

Vol. XVIII, 1970

## SOCIAL HOURS AT ACS

### New York, September, 1969

There was a friendly group of alumni who gathered together in New York. Among those who signed our guest book were: George BULBENKO (PhD'58) from Levittown, Pa.; Robert C. BRINER (BS'61), St. Louis; Ronald COLINS (PhD'62), Eastern Michigan; Mary K. CAMPBELL (PhD'69), South Hadley; Jerry H. CURRENT (BS'57), U. Michigan; R. Vincent CASH (PhD'52), immediate past President of AIUC, Central Connecticut State; and Rama CHATURVEDI (Post-PhD'66), New Haven. Joseph DISALVO (PhD'65) who is currently Director of ARAC on campus was there as were Ben (PhD'62) and Sandra (AB'63) EDWARDS from the Univ. of North Carolina at Greensboro, James FERRIS (PhD'58), Rensselaer Polytech; William O. FOYE (PhD'48), Boston; Jerome GENZER (MA'48), Livingston, N.J.; R. D. HAUGWITZ (PhD'66, New Brunswick, N.J.; William HODES (PhD'52), Winchester, Mass.; Miriam HARTZELL (MA'46), Carthage, Ill.; Steve HUMPHREY (PhD'65), Schenectady, N.Y., Roger (PhD'66) and Mrs. JOHNSON from Rohm and Haas, Philadelphia; Chong Yol KIM (MS'59), Elkhart; Gunter KUHL (Post-PhD'57-59), Cherry Hill, N.J.; Ted LARGMAN (PhD'52), Morristown, N.J.; and Angelo LOBO (PhD'66), Rensselaer Polytech. James MCCHESENEY (PhD'65) came in from U. of Kansas, Fred (PhD'62) and Mrs. METZ, Painesville, O.; Brown MURR (PhD'61), Baltimore; Marshall MEAD from the ACS office in Washington; Rodney MOSS (PhD'51) from Dow in Midland; Ravi MEHRA (PhD'68), Houston; and Louis MILAKOFSKY (Post-PhD'67-69) now in Scranton. Sydney NIX (PhD'51) from Waynesboro, Va.; Steve OSBORN (PhD'57), Newtown, Pa.; Terry PLETCHER (PhD'69), Cheshire, Conn.; Henry ROTHROCK (AB'26), Wilmington, were there. Robert ROWELL (PhD'60) and G. M. AVAL from U. Massachusetts; G. F. SCHMELZLE (PhD'40), 3 M in St. Paul; Robert SKLAR (PhD'66), Newark, Del.; and Robert SUMMERS (PhD'55); David TEMPLER (PhD'69), Rohm and Haas in Philadelphia; John TANNER (MS'54), Madison, Wis.; M. L. THOMPSON (PhD'64) who is teaching at Lake Forest College (Ill.); Carl VERBANIC (PhD'56), East Brunswick, N.J.; Richard WEDDELTON (PhD'65), Schenectady; Joseph WILSON (PhD'61), Lexington, Ky.; Bernard WOLNAK (PhD'43), Chicago; Emil WILDMAN (PhD'68), North Bergen, N.J.; Richard WELLS (PhD'62), Duke U.; James WOLFE (PhD'63), Blacksburg, Va.; Jack YOUNG (PhD'55), Oak Ridge National Laboratory; Marvin YATES

(PhD'64), now with the U.S. Geological Survey Office in Washington, all paid a visit to the Social Hour last September.

The IU Chemistry faculty was represented by I and Mrs. H. G. Day, Dr. F. Haurowitz, Dr. and Mrs. J. Gajewski, Dr. Lee Todd, Dr. and Mrs. E. Campai and Mrs. George Ewing. Much news of interest to many was exchanged at this get-together.

### Houston, February, 1970

While registration at this meeting was low, the attendance at our Social Hour was even lower. It was a cozy, friendly group of thirteen who showed up. They included Mack HARVEY (PhD'56) and Ravi MEHRA (PhD'68) who live in Houston; William HODES (PhD'52) from Winchester, Mass.; James ICENOGLE (AB'52), California City; Joseph DEC (AB'36) from Martinsville, N.J.; Joseph LEAL (PhD'53), Summit N.J.; Charles MAYER (PhD'69), Evansville; Marshall MEAD from the ACS Washington Office; and Oscar MENIS (PhD'51), Gaithersburg, Md. Also present were John TONNIS (PhD'68), Wisconsin State U., LaCrosse; Marvin YATES (PhD'64), Falls Church, Va and representing the faculty, Dr. and Mrs. H. Day

### Toronto, May, 1970

The Department was represented by Dr. and Mrs. Day, Dr. J. W. Moore, Dr. L. J. Todd, Dr. and Mrs. E. Campaigne, and student G. M. Bodner. Minas GEORGIADIS (PhD'64) who lives in Montreal was there along with Michael HOLMAN ('60-61), Hofman LaRoche in Nuttig, N.J.; David GARIN (Post-PhD'67-69), St. Louis U.; R. V. STEVENS (PhD'66), Rice University. Dr. Ralph (Post-PhD'65-66) and Mrs. THOMPSON, Richmond, Ky.; and M. C. WANI (PhD'62), Research Triangle Institute. It was nice to have former faculty members James Homer Jones and Walter L. Meyer drop by to visit.

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First Ph.D. in Chemistry from I.U. was granted in 1921 to Leo L. Carrick.

# NEWS OF THE DEPARTMENT

## Faculty Activities

Nine faculty members attended the Fall ACS Meetings; five of them, Jack K. CRANDALL, Joseph J. GAJEWSKI, Lee J. TODD, Earl L. WEHRY, and Rupert A. D. WENTWORTH, were coauthors of papers that were presented. The others who attended are Harry G. DAY, E. CAMPAIGNE, F. T. GUCKER, and F. HAUROWITZ.

John H. BILLMAN presented a lecture on "Cancer Chemotherapy" at Lake Forest College, Lake Forest, Ill.

Ernest CAMPAIGNE attended the Second International Heterocyclic Conference at Montpellier, France last summer. During the same trip he attended an IUPAC meeting at Cortina, Italy, at which it was decided to form a Medicinal Chemistry Section of the IUPAC Division of Organic Chemistry. He was asked to be the first chairman of this Section. An organizational meeting was held in February in Zurich, Switzerland, which he attended and chaired.

Jack K. CRANDALL lectured on "The Photochemistry of Some Cyclic Ketones" at the IBM Watson Research Laboratories, Tarrytown, N.Y.; on "Base-Promoted Reactions of Epoxides" at the University of Iowa and at the University of Cincinnati; on "Epoxide Chemistry" at Northwestern University; and on "Carbonyl Alkylations" as part of the Lilly Research Laboratories lecture series titled "Newer Methods in Synthetic Organic Chemistry" at Eli Lilly and Company, Indianapolis.

Harry G. DAY participated in the White House Conference on Food, Nutrition, and Health last December. During the year he has given lectures in the Departments of Chemistry at Macalester College, Oakland University, and Hope College. His topic was "Fluorides and Dental Caries." In April Dr. Day was elected President-Elect of the American Institute of Nutrition.

Felix HAUROWITZ presented the introductory lecture to a postgraduate immunochemistry course at the University of Pennsylvania Medical School in Philadelphia, and lectured on antibody structure at a meeting of the Michigan Biochemical Society. Last summer he attended the Symposium of the Czechoslovak Academy of Sciences in Prague, which was on the subject of "Developmental Aspects of Antibody Formation and Structure." He chaired one of the sessions and presented a paper at another one. In November Professor Haurowitz was an invited speaker at a symposium on "Structure and Function" in Germany which was organized by the Leopoldina Academy of Scientists in Halle. He spoke on "Antigen-Antibody Interaction" and was a participant in a roundtable discussion with six other scientists, including Nobel Prizewinners Manfred Eigen and Dorothy Hodgkin-Crowfoot.

Earl L. WEHRY gave two lectures, "Effects of Environment on Luminescence" and "Effects of Structure on Luminescence," at the Fluorescence and Phosphorescence Spectrometry workshop which was sponsored by the Saul Gordon Associates and held at Hopatcong, N.J. He also

presided at a session on "Luminescence Spectroscopy in Environmental Analysis" at the Eastern Analytical Symposium in New York City last November. He presented a paper in the same session.

Ernest WENKERT was an invited keynote speaker at the international Symposium on Tropical American Natural Products in Rio de Janeiro. The Symposium, sponsored by the Brazilian Academy of Sciences, included conferences on phytochemistry, invertebrate chemistry, pharmacology of natural products, and Brazilian medicinal plants.

## Mathers Lectureship

The first series of Frank C. Mathers Lectures was completed this Spring. Professor John S. Griffith, the first holder of the Lectureship, presented four lectures on the general topic of "The Transition Elements in Biochemistry," on February 18 and 25, March 4 and 11. The titles of the individual lectures were "The Biological Periodic Table," "Hemoglobin and Myoglobin," "Non-Heme Iron Proteins," and "Copper Proteins."

This Lectureship, made possible by a gift of money from a former student of Professor Emeritus Frank C. Mathers, is intended to cover a variety of subjects in chemistry, in keeping with Professor Mathers' breadth of interest. It is hoped that this program can be continued in future years.

All the lectures were attended by Dr. Mathers. At the first lecture, held in the Whittenberg Auditorium of the Memorial Union Building, he spoke delightfully for about fifteen minutes on some of his experiences in the Department over the years. Dr. Mathers reached 89 years last February.

## Focus on: New Faculty

The Department has expanded by seven faculty members, one of whom brought a research group with him, and "growing pains" are evident all through the Department--in the form of cabinets, instruments, and boxes set in the halls, and students doing research in the "abandoned" areas of the Old Building which are waiting to be remodeled.

Since space is also at a premium in this Newsletter, we have decided to introduce the new faculty to you by the following brief sketches, rather than providing a full-scale article on each one.

Assistant Professor Kenneth G. CAULTON'S research interests center around the inorganic aspects of nitrogen fixation. Since it is thought that coordination of molecular nitrogen to a transition metal "activates" this chemically inert molecule, attempts are being made to synthesize complexes of nitrogen. Once it is coordinated, the nitrogen may undergo reductive hydrogenation. One postulated intermediate

in this reduction is diimide, HNNH. Attempts are underway to form complexes of this highly unstable molecule.

Dr. Caulton was born in Chicago, Illinois. He obtained the AB degree from Carleton College and the PhD from the University of Wisconsin. The Caulton family (wife and two children) has always made its home in the Midwest. They find southern Indiana a particularly attractive place to pursue an interest in camping. Closely related hobbies include fishing and swimming.

Assistant Professor John M. HAYES is interested in organic geochemistry and analytical chemistry. He is working on the determination of patterns of intramolecular isotopic order, in collaboration with Professor W. G. Meinschein of the Department of Geology. In mass spectrometry his research involves ion-counting techniques for highly precise measurement of organic mass spectra. Organic cosmochemistry is another of Dr. Hayes' interests, and in this field he is investigating the nature and distribution of bulk carbon (not extractable contaminants) in carbon-rich (0.5-5.0%) meteorites. He has been a co-investigator in moon programs at the Massachusetts Institute of Technology, the National Aeronautics and Space Administration, and in Bristol, England.

Dr. Hayes was born in Seattle, Washington and received the BS degree from Iowa State University and PhD from Massachusetts Institute of Technology. He and his wife have three children, ages 3, 2, and 1. In addition to his interests in chemistry, Dr. Hayes is an amateur flutist and an amateur photographer.

Assistant Professor Gary M. HIEFTJE is an analytical chemist. His research interests include basic mechanisms in flame spectrometry, development of flame methods of analysis, liquid-liquid chromatography, and closed loop computer data acquisition and control of measurement systems.

Investigations are underway to elucidate the mechanisms of desolvation of droplets in a flame and the vaporization of the resulting salt particle. Because these processes are instrumental in determining the sensitivity and precision of atomic emission, absorption, and fluorescence flame spectrometric methods of analysis, knowledge of the mechanisms involved will be of extreme importance.

Knowledge gained in the basic flame studies can be used to modify existing or develop new instrumentation and techniques to enable better analytical results to be obtained. The design of new nebulizers, burners, and light sources, including a tunable wavelength laser, and the development of new techniques are all part of a program to enhance the utility of flame spectrometry.

By closed loop control, a digital computer can be used to optimize an experiment while it is in progress. Thus, rather than using a computer only as a data acquisition and treatment device, the information gained by the computer can be used to feed back to the experimental system in order to modify or optimize variables. Because of the high speed available, much better control of the experiment is possible with on-line computer interaction. This leads to increased and more meaningful data and enables many experiments to be performed which would otherwise be impossible. Computer-controlled experiments are presently being investigated in flame spectrometric and liquid chromatography and will later be extended to other

analytical methods.

Dr. Hieftje was born in Zeeland, Mich. He received the AB degree from Hope College and PhD. from the University of Illinois. He is single and has gymnastics and swimming as hobbies.

Professor Jay K. KOCHI is interested in the areas of organometallic and free radical chemistry and the mechanism of organic reactions catalyzed by metal complexes. Numerous organic reactions are catalyzed by metal compounds which function in an oxidation-reduction capacity. Metal-catalyzed autoxidation, the Sandmeyer and Meerwein reactions, the coupling of Grignard reagents, and the addition of metal compounds to olefins are a few examples of these. To determine the mechanism of catalysis by metal compounds, the redox reactions of specific free radical and metal species have been examined; these reactions involve the formation of carbonium ions and carbanions as intermediates by an electron transfer process or via a bridge activated complex. Dr. Kochi is also examining application of these mechanisms to the reactions of metal carbonyls, reducing and oxidizing metal ions,  $\pi$ -metal olefin, and  $\sigma$ -organo metal complexes with organic compounds.

Reactions of reducing metal ions such as chromium(II), vanadium(II, III), and titanium(II, III) with organic compounds are being investigated to determine the mechanism of the reactions and the various types of compounds which are reducible. It has been discovered that solutions of alkali metals in aromatic solvents produce radical-anions which show unique reactivity as free radical-anions. Mechanistic studies of a variety of such free radical reactions are being carried out by the use of electron spin resonance spectroscopy and by specially designed photochemical and stopped-flow experiments.

Dr. Kochi was born in Los Angeles. He received the BS degree from the Los Angeles Campus of the University of California and the PhD from Iowa State University of Science and Technology. Dr. Kochi came to IU from Case Western Reserve University, where he already had an active research group; two graduate students and four postdoctorals came to Indiana with him. He and his wife have three children, ages 10, 8, and 2.

Assistant Professor Peter W. LANGHOFF is a physical chemist whose current research interests involve theoretical investigations in the structure of atoms and molecules, their mutual interactions, and their interactions with electromagnetic perturbations.

Regarding the structure of atoms and molecules, his recent interests have centered about the construction of systematic improvements to the Hartree-Fock approximation employing many-body perturbative theory. Most recently along these lines, he has been investigating a formulation of the so-called random phase approximation - the logical successor to Hartree-Fock theory - directly in terms of the reduced first-order density matrix.

During the last three years theoretical chemists have come to understand, from a variety of viewpoints, what minimum amount of information is required to give accurate estimates for the long range van der

Waal dispersion interaction between pairs of molecules. Dr. Langhoff's approach to this problem has been via analytic continuation techniques and the so-called method of moments. Some of the applications, carried out in collaboration with others, have been made to both isotropic and anisotropic two- and three-body dipole interactions for simple atoms and diatomic molecules and to the leading relativistic interaction between the inert gases.

Finally, with regard to the interaction of radiation and matter, he has been employing the time-dependent Hartree-Fock approximation to investigate the excitation spectra of simple atoms and molecules; he has also examined variational formulations of time-dependent perturbation theory, in collaboration with others, and has been attempting to carefully delineate the full range of applicability of the semi-classical approximation to the interaction of radiation and matter. The time-dependent Hartree-Fock theory has thus far provided excellent results and applications to various nonlinear optical effects for larger systems are currently underway.

Dr. Langhoff was born in New York City and received his bachelor's degree in physics from Hofstra University and his PhD from the State University of New York at Buffalo. He and his wife have three children, ages 6, 5, and 1. In his spare time, Dr. Langhoff enjoys family activities, tennis, and swimming.

Assistant Professor Robert E. ROBERTS is a physical chemist interested in theoretical chemistry with specific emphasis on molecular collision theory and chemical rate processes.

His present endeavors include fundamental studies of bimolecular collision phenomena with application of the theory to basic kinetics problems. The primary objective of this research, at least from a chemist's point of view, is to provide a deeper understanding of the relationship between intermolecular forces and macroscopic chemical kinetics experiments. Exact theories have been developed for simple systems in hope that they may be extended, with suitable approximations, to more complex reactions. A most recent application has dealt with three-body recombination reactions.

Dr. Roberts was born in Pittsburgh, Pa. He received the BS degree from Carnegie Institute of Technology and the PhD from the University of Wisconsin. He and his wife have one child, born last September. In his spare time he enjoys photography, skiing, and canoeing.

Assistant Professor Albert C. YATES, a physical chemist, is particularly interested in theoretical investigation of atomic and molecular structure via collision of such systems with beams of electrons having very low to moderate energies. On the high energy side much effort is being expended toward determining relativistic effects in the cases of elastic and inelastic scattering of electrons from atoms. The aim of such an investigation is to be able to calculate reliable cross-section and spin-polarization distributions which, when compared with experiment, give valuable information regarding the structure of the target atom or molecule.

Dr. Yates was born in Memphis, Tennessee and received the BS degree from Memphis State University and the PhD from Indiana University. He and his wife have two children, ages 6 and 1.

One new faculty member will join the department in September, 1970:

John P. RICHARDSON, assistant professor, biochemistry; AB, Amherst College, 1960; PhD, Harvard University, 1966. He has been a postdoctoral at the Institut de Biologie Physico-Chimique in Paris for a year, in the Institut de Moléculaire at Geneva, Switzerland, for two years, and is currently in the Department of Genetics at the University of Washington in Seattle. His field of research is in the study of nucleic acid metabolism and biosynthesis.

## 1969 Graduates

June, 1969 saw seventy-one bachelor degrees in chemistry being awarded and the new graduates as usual went in a wide variety of directions. Among them, James BARNES, Larry DONIAK, Mary C. KEMP, are now teaching in high school while Charles BUNNELL entered graduate school at the University of Wisconsin, James ETCHISON has been a graduate student in biology at U. of California (San Diego), Arnold MILLER in chemistry at U. of Illinois, Paul ARGYELAN at University of Notre Dame, Robert BRICKMAN at U. California (Berkeley), and Lynn (Brunner) and Gerald CARLSON both went to the U. of North Carolina. Richard COLES, Jr. attended Indiana State University, Linda L. DAVIS went to the U. of Colorado, MICHAEL KESSLER is working in biochemistry at the University of Illinois, Robert MEEKS is at Washington State U., Allan TEREBA is in biochemistry at U. of Washington and Michael THOMAS is attending U. California at Los Angeles. Peter DAHL switched to Geology and is doing graduate work here at IU.

Robert BRATTON chose to work at U.S. Steel Corp., while Fred J. BRYANT went to Inland Container Corp. Daniel JESSOP is working at the Olin-Matheson Army Ammunitions Plant (Charlestown, Ind.) and George CONN, III, is also working for Olin. Thomas SHORT-RIDGE and William HARRIS traveled to Indianapolis to work for Eli Lilly and Lenore THOMPSON accepted a position with Kimberly-Clark in Neenah, Wisconsin.

Several of the students entered medical school either at IU or elsewhere: Philip CROOKE, Richard CROSS, Phillip DAWKINS, Michael ELMORE, Lawrence FETTERS, Gene GEBELE, Robert GOODWIN, Donald HAMON, Richard HANDLEY, Byron HOLM, Jr., Richard HUSEMAN, Rosemary HYDE, John M. KRATZ, Destry LAMBERT, Richard LEWIS, Robert MCCONVILLE, James MCFARREN (Cincinnati), James MIER, Richard PHILLIPS, Richard SALIB, Peter SCOTT, Michael SHEPHERD, Phillip SKINNER, Michael L. SMITH, Richard TIELKER, and Jon S. MORROW who is in the Combined Degree Program and is working for his PhD with Dr. Gurd. Paul BERSON has enrolled in the Case Western Reserve Dental School while David DENNIS and James MALOOLEY are currently at the IU Dental School and John FAWCETT is studying at the IU Optometry School.

Henry CARLILE, Fred KOCH, and Dennis KLEMM are serving terms in the military forces. Judith JONES is busy as a Laboratory Technician at St.

Luke's Hospital in Cleveland. M. Amanda (McKee) GILLUM when last heard from was working at a V. A. Hospital as a Research Technician in biochemistry and Carolyn ROME was working in the biochemistry department at the IU Medical School.

## Annual Honors Banquet

The annual banquet honoring those with high scholastic achievement was held this year on April 30 and a large number of students were honored.

Five freshmen were honored for their outstanding performance in first year chemistry courses: Don Jacobs from Indianapolis, John Klemme from Connersville, David Lovett from Zionsville, James Scamahorn of Pittsboro, and Eric Weben whose home is in New York.

The records of three of our sophomores were so very good that each was awarded a copy of the Merck Index: Osmund Chan from Hong Kong, Janet Rippy from Tell City, and Thomas Britton whose home is Griffith.

Again this year we were able to award 4 Dow Scholarships. The holders this year were Peter Clare (Evansville), Thomas Britton (Griffith), Vaughn Davidson (Valparaiso), and William Thayer (Plymouth).

The outstanding junior who was awarded the Courson-Greeves Prize for 1970-71 was Mary Kathleen Johnson (Muncie). Lisa Ann Sanders who shared the Prize for the past year with Lynn Vanatta from Dallas, continued her award winning ways this year - she was selected for the Outstanding Senior Award, The American Institute of Chemists Award, the Phi Beta Kappa Award, and then at the Alumnae-Senior Women's Breakfast she received the Beryl Showers Holland Fellowship for graduate study and was co-winner for the Susan Butler Award for outstanding character and scholarship. She completed her four year program with straight A's in all her courses for her degree.

This year for the Honors Banquet there were thirty-eight undergraduates listed on the Department Honor Roll and fifteen of those graduating were members of Phi Beta Kappa.

Seven of our students attended the Regional Meeting of the Student Affiliates with six of them presenting papers. It was a pleasure to learn that three of the six won prizes for their outstanding presentations.

In keeping with the celebration of 150 years for the University, the program consisted of readings by Professor David Hawes, "in character," of the writings of Kin Hubbard, the humorist who made Brown County famous with his character, Abe Martin.

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There were 269 undergraduate chemistry majors in 1969-70 and 175 graduate chemistry majors. There were also 37 postdoctoral students.

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## AIUC Newsletter Staff

Elizabeth Greene

Editor

Lois Crum, C. E. Kaslow,

D. G. Peters, W. E. Streib

Contributors

Harry G. Day

Contributor and Consultant

## Building Renovation

The planning of the fourth and final phase for renovation of the old Chemistry Building has been completed. Daggett, Naegele, and Associates is the continuing architectural firm but the engineering portion is being done by Mussett, Nicholas, and Stevenson of Indianapolis. It is expected that the work will start in the early fall and that the major portion of the renovation will be completed in about a year.

To refresh your memory, earlier phases included renovation of the ground floor (library and freshman teaching labs), the east and west ends of the first floor corridor (organic teaching labs and seminar room), the east and west ends of the second floor corridor (physical chemistry and analytical chemistry teaching labs and biochemistry research), and the area immediately adjacent to the Chemistry Addition.

The major areas included in this final phase of renovation consist of the old organic laboratories on the top floor and the research areas for physical and biological chemistry on the floor below. Much of the renovation in the organic area will be done with the view to eventually return much of these organic research laboratories back to undergraduate work. This will be possible after eventual construction of a second Chemistry Addition. Because of the need for space to house the theoretical chemistry group, who are packed into a small space in Wiley Hall, the abandoned general chemistry laboratory across from the main chemistry office is being converted to their use as well as additional offices for faculty. Some additional organic research space is being provided, also, on this floor.

The final phase must be carried out in two sections since there are not sufficient funds at the present. The University has placed the Department on first priority for renovation funds being requested of the coming legislative session. This will allow continuous work until completed.

Included in the plans, is the eventual air conditioning of the entire old building. When the renovation is completed, this will allow a much more efficient use of the old building and give new research laboratories comparable to those in the Chemistry Addition.

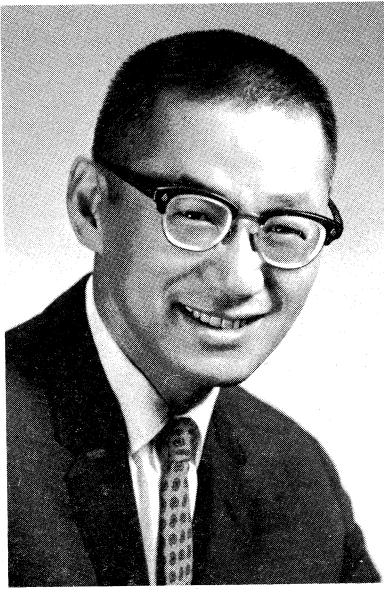
At the present time, plans for the second Chemistry Addition are at a standstill.

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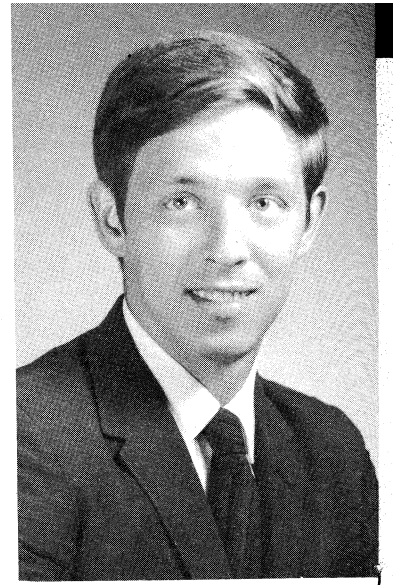
We had seven machinists in chemistry this year, and seven working on various instruments full time. There were three glassblowers.

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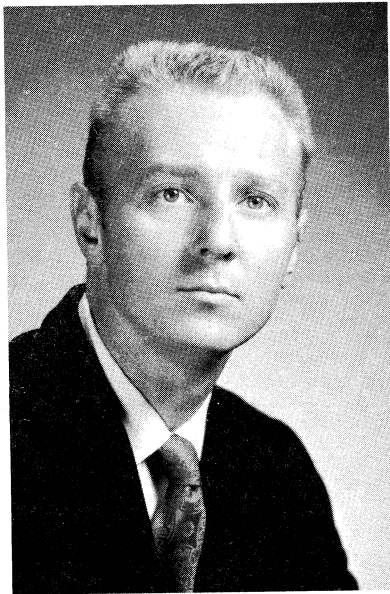
Chemical Stores, which is now operated as a separate department but housed in the Chemistry Building, employed seven full time men plus three secretaries. Materials are checked out through a credit card system and chemistry personnel are permitted to use the "super market" check outs.



Jay K. Kochi



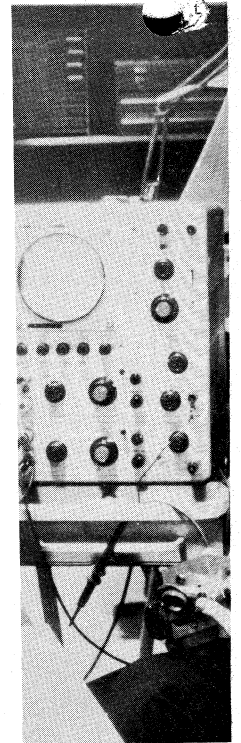
Robert E. Roberts



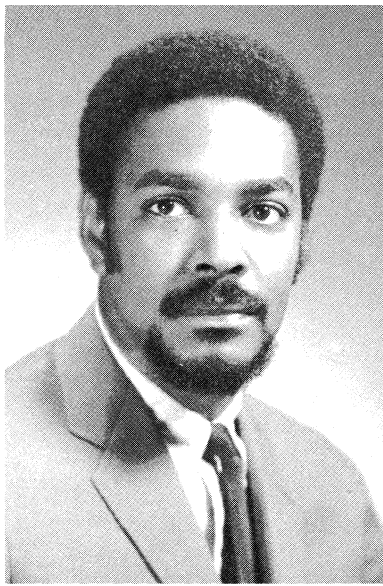
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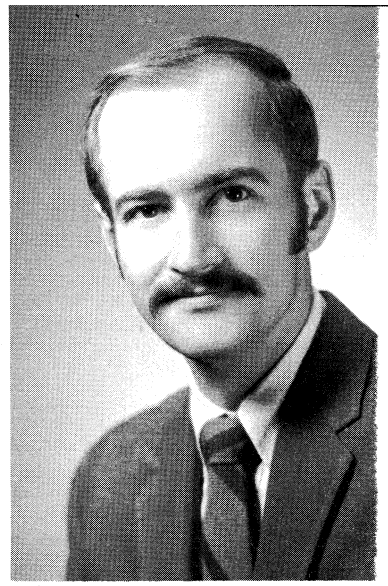
John M. Hayes



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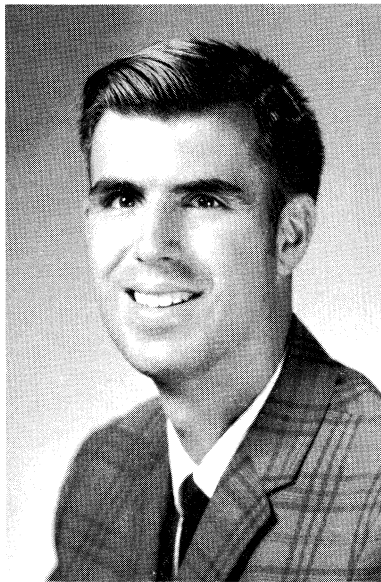
Albert C. Yates



Gary M. Hieftje



t Rowell



Kenneth G. Caulton



Elizabeth Greene

## Graduate Office

Four outstanding teaching assistants for the 1969-70 academic year, Nancy DEHOSTED, Robert HOWARD, Barry JONES, and Martha ORRICO, received cash awards at the Chemistry Honors Banquet held on April 30. In addition, Margaret COX, who was named one of the top four departmental teaching assistants for the preceding year, was recognized as winner of a University-wide Lieber Teaching Associate prize at the Founder's Day ceremonies on May 6.

For excellence in first-year (Chemistry C500) research Alan GOLICHOWSKI, who is doing his doctoral work with Professor Terry Jenkins, was named to receive the Robert Chernin Memorial Award for the 1968-69 academic year.

Our incoming class of graduate students for September, 1970, will number 53, with three of these being students returning from military service who were originally admitted for the Fall of 1968.

Finally, there will be a change in the organization of the Graduate Adviser's office. Starting in September, 1970, there will be two Graduate Advisers and two separate Graduate Committees, and the duties will be divided among the various persons. Dr. Peters will be stepping down as Graduate Adviser; Dr. Ewing will take over the responsibilities of graduate-student recruiting as one Graduate Adviser, but the second Graduate Adviser in charge of the counselling and the cumulative-examination program has not yet been named.

Among the outside fellowships to be granted to our current students are:

Michael MAGUIRE received a National Science Foundation Graduate Fellowship.

Woodrow CONOVER received a Public Health Service Predoctoral Fellowship.

The number of Ph.D.'s granted in chemistry each year continues to grow. Here are the names of those for the past year and where we have the information, their present activity is indicated:

Jack ALLEN (Shull) - Batelle (Ohio)

Jack ARRINGTON (Crandall) - will start work at Dow Chemical Co. after a year as postdoctoral at Northwestern U.

Karen BUSH (Mahler) - presently doing postdoctoral work at U. Calif., Santa Barbara, Department of Biological Sciences

Donald CLARK (Cordes) - postdoctoral work at Calif. Inst. of Tech.

Wilmer CRAIN (Montgomery) - postdoctoral at Caltech.

Alan DINNER (Campaigne) - postdoctoral at IU

David DODDRELL (Wenkert) - postdoctoral work at Caltech.

Michael GOLDMAN (Wehry) - working at DuPont (Marshall)

Gerald GREEN (Mahler) - postdoctoral at UCLA

Rollin HASELTINE (Crandall) - postdoctoral work at U. Calgary, Alberta (Canada)

Curtis HOLMES (Mortimer) - Baton Rouge, La.

Arthur VARNES (Wehry) - Asst. Prof. at St. Andrews Presbyterian College (North Carolina)

Alex JEFFCOAT (Wenkert) - Durham, North Carolina  
Charles KELLEY (Carmack)  
Daniel KNAPP (Campaigne) - postdoctoral at U. Calif. (Berkeley)

Karl KOEHLER (Cordes)

Richard MARKS (Cordes) - postdoctoral at U. Calif. (Santa Barbara), Biological Sciences

Donald MULLER (Ewing)

Martin PRICE (Cordes) - faculty at Geneva College  
Beaver Falls, Pa.

Gerald ROEHRIG (Billman) - Chairman, Chem. Dept.

at Aurora College (Illinois)

W. A. SANDSTROM (Cordes)

Norman SMITH (Peters) - Asst. Prof., Eastern Illinois U., Charleston.

Jack TURNER (Mortimer) - Center for Statistical Mechanics, U. Texas, Austin

Richard WATKINS (Crandall) - Asst. Prof., Cornell College, Mt. Vernon, Iowa

Daniel WATTS (Wenkert) - Greenwch, Ohio

Constantine ZERVOS (Cordes) - postdoctoral at School of Medicine, U. Maryland, Baltimore

In addition to the above, the following will undoubtedly get Ph.D.'s before September 1, 1970.

Daniel BACON (J. W. Moore) - Asst. Prof., American International College, Springfield, Mass.

Alan CLARK (Crandall) - seeking a postdoctoral

William COLEMAN (Schaap) - postdoctoral at U. of Arizona

Lawrence COX (Peters) - postdoctoral at U. of Georgia

Margaret COX (J. W. Moore) - going with her husband

Donn DARSOW (Schaap) - faculty member, Blackburn

College, Carlinville, Ill.

Dwight EDMAN (J.W. Moore) - Celanese Corp., Corpus Christi, Texas

John HUFFMAN (Streib) - postdoctoral at Harvard

David JIMERSON (Schaap) - Asst. Prof. Arkansas State

Armi NOBREGA (Peters) - faculty position in Brazil

Michael SCHUYLER (Parmenter)

James SHEAFFER (Peters) - one year appointment as Instructor at U. Wisconsin (Madison)

Marie VARNES (Gurd) - going to North Carolina to join her husband, Arthur

In addition a number of M.S. degrees in chemistry were awarded this past year: Paul ARRINGTON

(Cordes), Ellen BALSLEY (Guthrie), Ali BOUSHEHRI

(Streib), Jose CANCHUCAJA (Peters), Nancy CLARK

(Mortimer), Larry CRAWLEY (Crandall), Margaret

GARNER (Gurd), Larry HEWITT (Campaigne), Richard

LAWRENCE (Hartwell), Gary LAWRENCE (Jenkins), Nancy

LEE (Montgomery), Ronald LYLE (Gajewski), James MAIR

(Day), Dennis MCCLURE (Campaigne), William MCCUNE

(Billman), Lee MORROW (Wehry), Robert ROOT (Peters)

Mark SCHWARTZ (Carmack), Edward WHITLEY, Martha

WINSTEAD, Leroy BREIMEIER (J.W. Moore).

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The first full time Professor of Chemistry was Thomas Van Nuys who was appointed in 1886 when the Department of Chemistry was formally organized.

The first A.M. in Chemistry was awarded in 1890 to Robert E. Lyons who served as chairman of the Department 1895-1938.



## Secretary Treasurer's Report

As your perennial secretary and former teacher of many, I wish to extend personal greetings to all the alumni and friends. It is so pleasing to keep in touch with you through the Newsletter, the periodic social hours, and the various other ways that are available to us.

Your Editor, Miss Elizabeth Greene, has become so competent in her work and contacts with students that since last Summer she has been one of the six Academic Counselors of the College of Arts and Sciences. Her counselling is in chemistry and premedical work and she still works in the Chemistry Building, but she is on the staff of the Dean's office rather than the Chemistry staff. She continues her work on placement as in the past and although fewer companies sent representatives to chemistry last year, it is hoped that the number will increase this fall. The number of students with excellent records who are seeking jobs is on the increase and there are some good prospects for the right companies this fall.

Since the Medical School Admissions Office (Miss Littell's office) was moved to the Medical Center campus this Spring, more and more of the general questions about admission to medical schools are coming to Chemistry and any thoughts or suggestions those of you who have traveled the route through medical school can give to Miss Greene will be gratefully received and passed along to the current students.

Miss Greene continues to handle my secretarial requirements in the Department. This highly deserved promotion and change of status is working out real well. We are well pleased.

The prolonged and serious illness of Miss Greene's mother earlier this year greatly delayed the production of this issue of the Newsletter. Happily Mrs. Greene has finally recovered and a normal schedule has been resumed.

This delay and the problem of substantial cost in producing the Newsletter has precipitated a decision to publish it once per year instead of two times per year. Unless there is a strong protest and this is combined with a marked increase in funds that can subsidize the production this action will be taken. Comments and suggestions surely will be appreciated.

As indicated elsewhere in this issue, we are going to revise the mailing list and include only the alumni and friends who wish to receive the Newsletter. Also, we hope to increase the amount of news of interest to the readers.

Because Chicago is rather centrally located for many of the alumni and friends it is hoped that the AIUC social hour will be attended by large numbers. Probably it will be on 15 September. Be sure to look in the Schedule of Events for its location. Of course, as usual, it will be listed as Association of Indiana University Chemists. It is hoped that our president and president-elect, Bob Rowell and David Barnes, and many of the past presidents will be present.

We are solvent owing to support received from a special fund. With the next issue we will request each reader of the Newsletter to furnish a small amount of support.

### Treasurer's Report

Balance, 30 June 1967	\$132.43
Receipts (contributions from alumni)	19.00
Total	<u>\$151.43</u>
Bank service charges	1.27
Balance, 31 May 1970	<u>\$150.16</u>

## NEWS OF THE ALUMNI

### Getting to Know:

Robert Rowell, Associate Professor of Chemistry University of Massachusetts and President, AIUC

Bob came to IU in 1956 from Boston College to work with Dean Frank Gucker on light scattering measurements and completed his work for a PhD in 1960. Bob and Lisa (Hellstrom) were married shortly before coming here and during most of the time they were in Bloomington she was one of McCalla (elementary) School's favorite teachers. While they lived in Bloomington, Bob served both as a teaching assistant and later as lecturer while he was working on his research. After completing his work he moved on to the University of Massachusetts where he has been successively Instructor, Assistant Professor, and now Associate Professor of Chemistry. He spent considerable time for several years in getting the Computer Center going at the U. of Mass. He tells me that now it is flourishing and he can once more devote himself to research with his current work involving high resolution laser and laser-Raman light scattering. This work is being done in collaboration with the Optical Research Group of Perkin-Elmer's Norwalk Laboratory. Bob spent the 1966-67 academic year on sabbatical leave as visiting research associate at the Institute of Colloid and Surface Chemistry, Clarkson College. Bob is advisor for the Chemistry Club and active in the ACS local section programs. He will serve as chairman of the 46th National Colloid Symposium which will be held on the U.M. campus in 1972. He has participated and helped in the growth of chemistry at the University of Massachusetts where they are now constructing a new 17-story building and where chemistry is taught in the Chemistry Department, Biochemistry Department, and in the Department of Polymer Science and Engineering. There are around 18,000 enrolled on the Amherst campus, with a few thousand more on the Boston campus and in the new Medical School. The enrollment at the University of Massachusetts has tripled in the past ten years and is still growing by leaps and bounds. Bob has been consultant for several industrial firms and two book companies.

In June, 1965, he was co-chairman, with R. S. Stein, of the Second Interdisciplinary Conference on Electromagnetic Scattering which drew 151 speakers and participants from 28 states and eight foreign nations.

Before Bob and Lisa left Bloomington, a son, Rusty, was added to their family so that there is one Hoosier among the Rowells, who now number six with Lori who is 8, David now 5, and James who will be one year old this Fall. With the new awareness of many of our more concerned citizens, the whole family participates in their church activities and contributes toward better understanding and knowledge of others through their own person-to-person projects and by hosting summer youth through the Fresh Air Program and work with the relatively new Box Project which provides a family-to-family link with new friends from a Southern state.

The Rowells moved into a new home in 1963 but they are still working on it and changing things. Much of the furniture and "built ins" are of their own design and manufacture. Bob is not only an expert in working with wood but has some experience in sheet-rock installation and electrical wiring.

And then when any spare time comes along in the winter, you will find them enjoying their own ice rink in the back yard or Bob may be working with the cub scouts!

## Newsnotes about the Alumni

David K. BARNES (PhD'47) is now Assistant General Manager of DuPont's Electrochemicals Department at Wilmington.

Horace R. BAXMAN (BS'43) who received his PhD from Cornell University in Ithaca and is now a Staff Member of Los Alamos Scientific Laboratory, was elected a Fellow of The American Institute of Chemists.

Ram D. BEDI (PhD'60) became Head of the Chemistry Department for Eaton, Yale, and Towne in January, 1969. He was awarded the AES Silver Award for 1969 for a paper he published in 1968.

Tal BOSIN (PhD'67) after two years at Berkeley with Henry Rappaport returned to the Bloomington campus where he is Assistant Professor in the Department of Pharmacology.

Walter BUDDE (MS'47) has become Vice-President and Technical Director of the new Viking Chemical Company, Blooming Prairie, Minnesota. They plan to manufacture vinyl plasticizers and oxirane chemicals.

Wolfgang BUTTNER (Post-PhD'56-58) and his family continue to live at Giessen, Germany where he works in the dental clinic and conducts research in the department of dental research.

Anthony CAMPAGNONI (PhD'69) has accepted an assistant professorship at the University of Maryland.

Vincent CASH (PhD'52) has completed his first year as the chairman of the Department of Chemistry at Central Connecticut State College.

Frank CHENG (PhD'57) continues to be on the staffs of the departments of Radiology and Radiobiology at the University of Iowa Hospitals. He is Associate Professor.

Grace CHIU (Post-PhD'62-64) has been promoted to Associate Professor of Chemistry at the University of West Florida.

As many probably know, Jack COOK (PhD'44) and Marian were in Germany last Summer when Apollo 11 permitted man to walk on the moon. They were thrilled beyond words to share the viewing of this epochal event with understanding German friends.

At the first meeting of the newly-organized American Neurochemical Society in Albuquerque three of the chemistry alumni presented papers. They included Carl COTMAN (PhD'68) who has a very active research project going at the University of California at Irvine, Kurt von HUNGEN (PhD'68) and Gary DUTTON (PhD'68). All three of these men received their graduate training with W. J. Moore and H. R. Mahler in their "brain research" group.

Joanna DICKEY (MA'33) added a new name when she was married to Wilford Ferguson last Fall and retired from the Department.

Robert DUFF (PhD'61) has been elected president of the New England Society for Electron Microscopy for this year. We have also learned that he and a co-worker are writing a chapter in a book on energy dispersing X-ray detectors. They plan to participate in the ASTM symposium held in Toronto and talk about adaptation of this device to transmission electron microscopes.

Stephen ELLIS (BS'61) was appointed Product Management Manager at Ren Plastics last July. This is the same job Tex Thomas held a few years ago.

Steve FIKE (BS'67) has been married almost two years. Working under Professor Noyce at Berkeley, he expects to complete his degree in 1971.

Sidney FLEISCHER (PhD'58) was one of the participants in the 2nd Saratoga Conference on Molecular Biology and Pathology last August. He is a contributor to the latest (1970) volume of ANNUAL REVIEW OF BIOCHEMISTRY. He and Becca were guests of the Division of Biological Sciences in May, 1970 and spent a little while getting re-acquainted with the Department of Chemistry, while in Bloomington.

Ronald HACKLER (BS'62) was awarded the PhD from Penn State in March '69 and rejoined Eli Lilly and Co. in the Agricultural Organic group at Greenfield.

George HAHN (BS'63), with Shell Oil, is in his spare time, active in the Jaycees in New Jersey. He appeared in the 1969 Edition of "Outstanding Young Men of America." Congratulations George!

David HITTLE (MAT'68) reports that he is enjoying teaching in a junior college at Escanaba, Michigan.

Hans Peter KNOESS (AB'62) was granted a PhD from the University of Michigan last year.

John McAnally (PhD'50) was Dean of Students at Occidental College several years. He gave it up recently to become a full time teacher of chemistry. Through his influence some good students have come to us for graduate work.

Loren MARTIN (AB'65) has been teaching in the Department of Physiology at IU this past year after completing his PhD in that department.

Richard MAURER (PhD'57) has been working successfully for some time in the development of special food products with high nutritional quality and commercial attractiveness, along with acceptance by governmental agencies.

John MEADE (AB'66) after three good semesters in law at Michigan, entered military service. After several months in this country, he was sent to Hawaii. For several more months since then he has been enjoying the balmy breezes and pleasant beaches.

Ravi MEHRA (PhD'68) after working with Bob STEPHENS (PhD'66) at Rice, is planning to return to India this summer.

John MORGAN (AB'63), after completing his PhD at Princeton in 1967, had a year of postdoctoral work at Johns Hopkins. Since then he has been with P&G in Cincinnati where he occasionally sees Dr. E. Wendert when he visits the laboratories.

Geoffrey PARFITT (Post-PhD'55-56) has joined the British Titan Products Co., Ltd., Billingham, Teaside, England.

Elsa Proehl PAULSEN (MA'45) and her husband (Dean of the School of Law) and two sons now live at Charlottesville, Virginia. She continues to be productive in clinical research.

Harold PROPHET (Post-PhD'57-59) has succeeded D. R. Stull as Project Director for preparation and publication of the JANAF Thermochemical Tables, a continuing, loose-leaf (and magnetic tape) compilation of the best values to use for the thermodynamic formation constants of inorganic and some organic compounds over a very large temperature range.

Gerald RECKTENWALD (PhD'55) has been named plant manager of a new plant near Allentown, Pa., where Olin will manufacture a new type of urethane foam which was developed in Jerry's research group.

Many will be interested to know that Wendell ROELOF (PhD'64) and family live at Geneva, N.Y. where he is having good success in learning how to control insects through the development of suitable attractants.

The William ROESSLERS (BS'42; he also completed PhD in '50 in Bacteriology at IU) expect to have three sons enrolled at IU next year.

Robert SCHMIDGALL (PhD'69) taught at the U. of Arkansas the second semester, 1969-70.

James SCHOOLEY (AB'53) was recently awarded the US Department of Commerce Silver Medal for his highly significant work in superconductivity. Since 1962 he has been on the staff of the Cryogenic Physics Section of the National Bureau of Standards. He is currently involved in work aimed at the definition of the temperature scale in the liquid helium range. He and his wife were in Bloomington on June 6 for the funeral of Branch McCracken.

Nicholas SELDON (AB'56), who successfully teaches high school chemistry in Indianapolis, and his wife toured Europe last Summer.

Moon Taik SHIM (PhD'57) is now Vice-President of the Korea Institute of Science and Technology.

Ian STAPLETON (PhD'66) is continuing to combine successfully his excellent talent in making dyes for woolen fabrics and his professional skill in operative roles.

Earl STEDMAN (Summer Institute Participant'66) has moved from South Dakota School of Mines to Anderson College, Anderson, Indiana.

Helen Merriam STEWART (MA'46) has four children, a high school teacher husband and both are important leaders in their community of Maquoketa, Iowa.

Philip T. STROUP (MA'26) retired as Assistant Director of Research after 40 years with Alcoa, with a number of patents and papers on extraction and metallurgical processing of aluminum to his credit. He has been retained by Alcoa as a consultant.

Norman SWEENEY (AM'51) is now Research Specialist in the Paper Products Division of 3M and visited the Department for a couple of days this spring.

Hubert (Tex) THOMAS (PhD'52) is now senior scientist at Ren Plastics in Lansing, Michigan.

Alumni who have stopped by the office the past year have included: John OVERMAN (MA'41), John D. RAU (AB'66), Bliss Steve PHILLIPS (AB'68), John MEADE (AB'66), and Laurie C. SKOV (BS'66).

## Necrology

We were very sorry to learn of the death of Professor Fritz Arndt on December 8, 1969 in Hamburg. He was visiting Professor in the Department in 1954.

And of John F. DEUPREE (PhD'36) who was a member of the faculty at the University of Detroit for 27 years and died June 2, 1969.

Many of you will remember Sara Hiestand who worked in the Chemistry Library for the past several years. It was with deep regret that we learned of her passing on 26 May. She had been forced by illness to retire the first of the year and had been with her daughter in Zionsville. A fund has been set up as a memorial to her (through the Indiana University--Friends of Chemistry Account) and it is planned to purchase either a set of books or some other appropriate library item in her memory.

## Treasury Status

In the past we have been permitted to use the mailing as well as printing facilities of the Alumni Office for mailing out the AIUC Newsletter and have therefore been sending it to all those who have received degrees in chemistry, and for whom the Alumni Office had current mailing addresses. However, the costs have climbed at a rapid rate recently, and it has become necessary for us to seek another method of handling the Newsletter. It has been concluded that the best procedure would be to ask our Alumni to indicate whether or not they would like to continue to receive it and in the future to restrict the mailing to those persons. Will you please complete and return to us the enclosed directory card if you would be interested in continuing to get the Newsletter. From the response we will make up our mailing list and future copies will be sent to those responding to the questionnaire.

## Faculty Retirements

### Frank T. Gucker

Professor Frank T. Gucker retired from his teaching duties in June 1970 after 23 years as a faculty member in this department. He came in 1947 as chairman of the department, and in 1951 he was appointed Dean of Arts and Sciences, a position he held until reaching administrative retirement age in 1965. Since then he has held a research professorship in chemistry.

Dr. Gucker was born in Philadelphia, Pennsylvania in 1900 and received the AB from Haverford College in 1920 and the AM in 1921. He then went to Harvard University and received the PhD in physical chemistry in 1925.

Dr. Gucker's basic research interests began with thermochemistry and precise calorimetry, but he became interested in the area of aerosols through his studies on light scattering measurements in this system, and this led him very early into problems of air pollution and smog. He will continue to conduct research in these areas.

During his retirement, Dr. and Mrs. Gucker hope to be able to spend more time at the lake in New Hampshire, and in travel. We wish them the best for many years to come.



Frank T. Gucker



Frederic C. Schmidt

### Frederic C. Schmidt

Professor Frederic C. Schmidt retired from teaching in June 1969, having been a faculty member in this department since 1947. During those 22 years he introduced more than 17,000 students to college chemistry, and his distinguished chemistry text, General Chemistry, written with his colleague, Professor William Nebergall, currently reaches tens of thousands more each year.

Dr. Schmidt was born in New Haven, Connecticut, in 1904. He received his bachelor's degree in 1927 and his PhD degree in 1931 from Brown University.

As a teacher, Dr. Schmidt has proved that large lecture sections need not be impersonal. Those in his classes of more than 500 have been impressed by his ability to remember the names of large numbers of his students and by his continuing interest in their achievements in later years. His excellence in teaching was officially honored when he received the Herman F. Lieber Award for Distinguished Teaching in 1961.

Dr. Schmidt was also involved for many years in the improvement of high school chemistry instruction, through his work with high school teachers throughout the State.

Dr. Schmidt is continuing an active program of research on the topics of electrochemistry and calorimetry in nonaqueous solutions. He and his wife have the best wishes of his colleagues for many years of good health and enjoyable activity.

## Briscoe Professorship

Professor Ernest Wenkert was appointed last January as the first holder of the Herman T. Briscoe Professorship. The endowment fund for this chair was established in 1960, the year of Professor Briscoe's death, and has been receiving contributions since then.

Dr. Briscoe was a member of the chemistry faculty from 1922 to 1959 and also served for many years as Dean of the Faculties and as Vice President of the University. The professorship was established in his honor primarily to recognize his contributions to excellence in teaching, both as a teacher himself and as an administrator who encouraged the rewarding of fine teaching.

Again, the participation of many chemistry alumni in the establishment of this professorship is appreciated.