

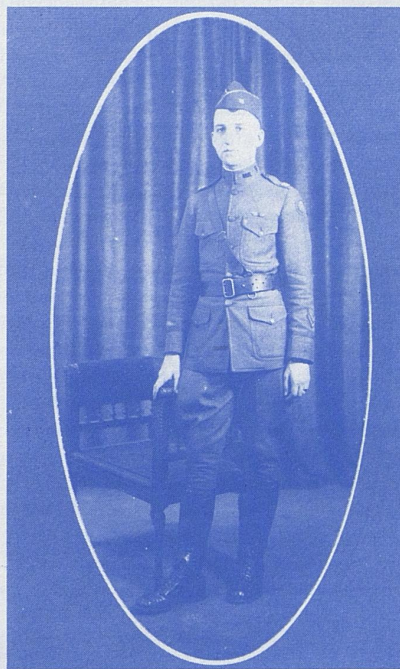
Chem-news

Alumni Newsletter Published by Department of Chemistry University of Kentucky



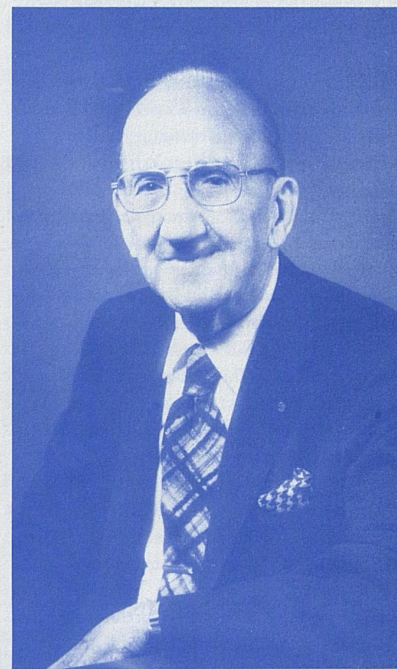
Col. A. S. Behrman Inducted into the Hall of Distinguished Alumni

On May 10, 1985, Col. A. S. Behrman was inducted into the University of Kentucky Hall of Distinguished Alumni. He was born December 15, 1892 in Covington, KY and received a B.S. in Industrial Chemistry in 1914. He taught chemistry at Sue Bennett Memorial School, London, KY for one year and then spent two years in the Philippine Islands conducting surveys of water supplies. In 1917 he was commissioned in the Army Quartermaster Corps and in 1918 he was assigned to France and participated at the front in all three American offensives. He continued service in the Army of Occupation in Germany where he conducted surveys of public utilities, then returned to Paris to head an engineering group to evaluate the damage in France and Belgium. In the summer of 1919 he returned to the United States and was discharged from the Army. From 1919-42 he was the chief chemist and later Vice-President of International Filter Company in Chicago where he developed equipment and materials for water treatment, including ion exchange, clarification, filtration, and use of granular activated carbon. From 1942-1944 he returned to active duty in World War II, with principal stations in Hawaii and Washington. From 1944-46 Col. Behrman was Vice-President and Director of Research of Velsicol Corporation in Chicago. After considerable activity in the Army Reserve he retired at the mandatory age of 60 in 1953 with rank of Colonel, AUS. Since 1947 he has been a chemical consultant, and is still active in his laboratory in Chicago. He has published two books: **Philippine Water Supplies**, and **Water is Everybody's Business, The Chemistry of Water Purification**. He is the author of about a hundred



A. S. Behrman, 1919 in France

scientific publications and fifty-six U.S. patents relating to water treatment, especially ion-exchange but also to siliceous gels, adsorbents and catalysts, and battery separators. In addition to his professional career he is an accomplished musician and maintains an active interest in choral music. He received the Distinguished Service Award from the Division of Water, Sewage and Sanitation of the American Chemical Society in 1957. He became a University of Kentucky Fellow in



Col. A. S. Behrman, Hall of Distinguished Alumni, 1985

1980 and is a generous supporter of the Department of Chemistry.

The Department of Chemistry was privileged to hear a seminar presented by Col. Behrman the afternoon before he was inducted into the Hall of Distinguished Alumni. He spoke on "The Fascinating Story of Ion Exchange" and gave a striking demonstration of the production of one of his many patents on silica gel.

A Message from the Chairman

Chemistry Departments, like their citizens, have highs and lows. The 1984-85 year was something of a low as manifested in miniscule salary increments, difficulties in recruiting new graduate students and, finally, the loss of Laren Tolbert to an attractive position at Georgia Tech. Since the beginning of 1986, however, things have started to look up. From our present vantage point in the summer of 1986, I see more promising developments than at any time since the late 1960's. There has been a general renaissance of state-wide interest in the fortunes of higher education which was evidenced this spring by legislative approval for a \$30 million bond issue aimed at buying research equipment for the University of Kentucky. Chemistry has submitted requests for a new 400 MHz nuclear magnetic resonance spectrometer, a Microvax II computer system to be interfaced with the X-ray diffractometer, an argon laser system, an intensified diode array detector to be used with the Raman spectrometer, a field-ionization/field-desorption ion source for use with the ZAB-2F mass spectrometer, and a VUV photoelectron spectrometer. We have also requested matching funds to purchase a Fourier-transform, ion-cyclotron-resonance mass spectrometer. If Chemistry is allotted all of the items requested, and there appears to be a good chance that this will happen, we would add \$1.1 million in new equipment. In addition to extending the research capabilities of our present faculty the new equipment should prove helpful in attracting top-quality applicants for our remaining vacant faculty positions.

Salary raises for faculty and staff were reasonable for the new academic year, and, most importantly, the University has finally found it possible to increase stipends for graduate teaching assistants. The raise was \$1,200 with the likelihood of further increases next year. Allan Butterfield, our Director of Graduate Studies, had a fine recruiting year, and we expect fourteen new graduate students to arrive in August and at least seven more in the spring. Another raise next year and some aggressive recruiting should put us back in the game.

A major effort in our department this year centered around our attempts to qualify for grant support under the EPSCoR (Experimental Program to Stimulate Competitive Research) program. Eleven states, including Kentucky, were judged eligible for this program to be funded by the National Science Foundation, and a state-wide committee was appointed to solicit proposals. Our department was involved in several proposals, two of which were selected for inclusion in the final Commonwealth of Kentucky version sent to

NSF. Although we have not received official notification of approval at this writing, the signs now look very good. The two major components involving Chemistry have to do with membrane science research (Allan Butterfield, project director) and nuclear methods research (Steve Yates, project director; Bill Ehmann, co-principal investigator). Together, these two projects will bring roughly \$2 million over five years. Part of this money will be used to attract two new faculty members to our department, a polymer chemist and a radioanalytical chemist.

Additional encouraging signs can be found in individual grant activity. Several faculty have received new grants this year. Allan Butterfield and Tom Smith are involved in a project aimed at surface decontamination of aircraft. Dennis Clouthier has received a major three-year grant from the Department of Energy to do laser spectroscopy on combustion intermediates. He also received a starter grant from PRF to explore the spectroscopy of phosphalkyne compounds. John Richard obtained a starter grant from Research Corporation to study the mechanism of action of beta-galactosidase, and Steve Yates is involved in a U.S.-Hungary cooperative research project funded by NSF and dealing with shape coexistence at double subshell closures of nuclei. Dr. Gábor Molnár from The Institute of Isotopes in Budapest has been a visitor in our department since June 1985 and has been working with Steve on this project. In addition to these new grants, renewals have been obtained by Kurt Niedenzu for his boron polymer work and by Jack Selegue for studying metallacumulene and carbide complexes. Merle Pattengill, having spent the 1985-86 year continuing his theoretical studies of reaction dynamics at Stanford University on a Guggenheim Fellowship, will stay in California for another year. NASA has found that Merle's studies are relevant to the operation of orbital transfer vehicles and will fund his research effort in their Ames Lab at Moffett Field.

Two new faculty members will join us this fall. They are Dr. Leonidas Bachas, an analytical chemist, and Dr. Thomas Guarr, an inorganic chemist. Leonidas is a Greek citizen who recently completed his Ph.D. dissertation at the University of Michigan with Professor Mark Meyerhoff. Leonidas is interested in enzyme-linked competitive binding assays which are coupled to electrochemical detection. He will also apply electrochemical detection to problems in analysis of interstitial waters from ocean and lake sediments. Tom received his Ph.D. from the University of Rochester with Professor G. L. McLendon. Since 1984 he has been working with Professor

F. C. Anson at California Institute of Technology. Tom will be using electrochemical and photochemical techniques to answer questions about electron transfer in polymers and solvent-swollen polyelectrolytes. He will also be investigating electrochemical methodology as applied to the synthesis of inorganic compounds. We are extremely pleased to have added two such promising young scientists to our staff. Leonidas and Tom are also nice people and will fit well in our congenial departmental atmosphere.

We will have the pleasure of hosting an unusually large number of visiting faculty this year. In addition to Dr. Molnár, mentioned above, Professor Fred Shannon of Houghton College was here for five weeks late last spring. Professor Jo Ann Jansing, department chairperson at Indiana University Southeast will spend the 1986-87 year with us and plans some collaborative work with Bill Ehmann. We are also pleased to have three Appalachian College Fellows with us this year. Last fall, the University of Kentucky Appalachian College Program applied for and received a large grant from the Pew Memorial Trust Fund. The bulk of the money will be used over the next five years to support visits to UK by mathematics and physical sciences faculty teaching at private, four-year Appalachian Colleges. One of this year's visitors in Chemistry is Professor Larry Blair of Berea College, Berea, KY, who will be here for the spring semester of 1987 collaborating with Carol Brock in some X-ray and NMR studies. Professor Yueh-hua Giza from Wheeling College, Wheeling, WV will be here all year, working on a project with Tom Smith aimed at designing polymers to remove pollutants from environmental media. Professor Nazir A. Khatri from Union College, Barbourville, KY is here for the summer of 1986 working with Bob Kiser on application of artificial intelligence principles to mass spectrometry. Such visitors greatly enhance the academic environment in our department, both through their actual research activities and in the different perspectives they offer. We in turn supply instrumentation and expertise often not available at their home institution. They also have a chance to judge the suitability of our graduate program as a place to send their students. All in all, everyone benefits.

Inspired by Allan Butterfield, we held the first Regional Undergraduate Research Poster Competition this past spring. You may recall that we have traditionally sponsored a poster session each year for our own CHE 395 students. The new regional event was timed to follow our local session and drew students from Kentucky colleges and several schools in neighboring states. We plan to try this again

in the spring of 1987, and we hope it will become an annual happening.

These messages always seem to contain more information about research than about teaching. Probably this is because I assume you already know that we continue to perform spectacularly in the latter activity. Although we have acquired something of a reputation on campus as being "hard nosed," perhaps even unsympathetic, in our evaluation of student performance, it is my perception that this only reflects our determined insistence that students gain some permanent knowledge and understanding from their classroom experiences. In truth, we probably care too

much. As alumni, you are the best judges of how successful we are, and I would welcome your comments and/or criticisms in this regard. One of this year's teaching highlights was the appearance of the second edition of Jim O'Reilly's "Instrumental Analysis" (Allyn and Bacon, Inc.). The first edition sold 24,000 copies. We also offered another summer course for high school teachers, this time for Physical Science teachers as well as Chemistry teachers. Jim Holler has done most of the organizational work and a large share of the teaching, but several others have contributed as well.

Clearly, progress is being made. Surely the

next few years will find all of our labs full of brilliant, hard-working students using the latest model instrumentation. Currently empty faculty offices will be filled with enthusiastic young Nobel Prize seekers, and senior faculty will be having trouble dividing their time between speaking at international conferences and advising the host of undergraduate chemistry majors trying to transfer from Harvard and Stanford. Maybe two years is too soon, but surely in five—?

Robert D. Guthrie, Chairman

Comments from the Editor

This issue of the newsletter covers events and information for the 1984-85 and 1985-86 academic years. Highlights of the past year are covered in the message from our Chairman, Robert Guthrie. We are featuring a section on our alumni who graduated 1940-44. In addition to the research grants listed in Bob's message and the faculty and staff news, we have received substantial additions to the Anna S. Naff Endowment Fund, Col. A. S. Behrman Fund, and the Alumni Development Fund.

The Eleventh Annual Symposium on Chemistry and Molecular Biology, supported by the fund in memory of Anna S. Naff, was held May 3, 1985. The topic was "New Biochemical Insights Via NMR." Speakers were: Professor Brian R. Reid and Professor David E. Wemmer, both from the University of Washington; Professor Stanley J. Opella, University of Pennsylvania; and Professor Robert G. Shulman, Yale University. The Twelfth Annual Symposium was held April 7, 1986. The topic was "Radionuclides in Chemistry and Medicine." Speakers were: Dr. Rosalyn S. Yalow, 1977 Nobel Laureate,

Chief of Radioimmunoassay Reference Laboratory, V.A. Medical Center, Bronx, NY; Professor Henry N. Wagner, Jr., M.D., Director of the Divisions of Nuclear Medicine and Radiation Health Sciences, Johns Hopkins University, Baltimore; and Dr. Alfred P. Wolf, Chairman, Department of Chemistry, Brookhaven National Laboratory. Carol Brock will chair the committee for arranging the next symposium. We welcome any suggestions for topics and speakers for future symposia.

The University of Kentucky Student Affiliates of the American Chemical Society maintain an active program and are a great asset to the Department. Each year they sponsor a state-wide contest for high school students, who come to our campus to take a competitive examination. The top winners receive cash prizes and credit for two of our general chemistry courses if they attend UK. Over a hundred students participate. The chapter also sponsors the departmental "Teacher of the Year Award." Other activities include a student-faculty "get-acquainted" social hour each fall, a departmen-

tal picnic each spring, a program of speakers throughout the year, and other social activities.

We thank those who respond to our request for news, which we hope you enjoy in our Alumni News section. Enclosed is a form for your convenience in keeping us up to date and please let us know any change of address.

We are also grateful for the contributions to our development fund. This fund makes it possible to support activities that cannot be funded from state appropriations. If you wish to make contributions to the University to be used by the Department of Chemistry or the Hammaker Fund for Handicapped Students, please specify that the donation is for the designated fund. Donations may be sent to the Director of Development, William B. Sturgill Development Building, University of Kentucky, Lexington, KY 40506.

When you come to Lexington please stop in for a visit and meet our faculty and staff and see our facilities.

Bill Wagner, Editor



1986 Symposium on Chemistry and Molecular Biology.

Left to right: Henry N. Wagner, Jr., M.D., Dr. Rosalyn S. Yalow, Dr. Alfred P. Wolf, Dr. M. B. Naff.

Financial Report

One of the provisions of the Anna S. Naff Endowment Fund which supports the Annual Symposium on Chemistry and Molecular Biology is to provide a published financial statement of the Fund periodically. The last report was made in 1981. We felt it is appropriate to publish it in the Alumni Newsletter to inform many of you who have benefited from the Symposia. The Fund was established to stimulate thought on, understanding of, and insight into the chemical process in living things.

SYMPOSIUM DATE	CHAIRMAN	TOPIC	SUPPORT
4/30/82	L. M. Tolbert	Artificial Photosynthesis	\$2,667
4/22/83	J. R. Kincaid	Structure and Function of Cytochrome P-450	\$4,396
3/30/84	W. T. Smith	The New Embryology: Molecules and Mechanisms Determining Animal Form	\$3,030
5/3/85	S. L. Smith	New Biochemical Insights Via NMR	\$4,945
4/7/86	W. D. Ehmann	Radionuclides in Chemistry and Medicine	\$6,366

Endowment Fund Reserve 7/1/86—\$84,107

SPECIAL NEWS FROM THE 1940-44 ALUMNI

We are pleased to present the responses from the following alumni in answer to our request to bring us up-to-date on their activities since graduation.

1940

Thomas R. Bryant, B.S., went on to Harvard Medical School graduating December 1943. After nine months of internship served U.S. Army in WW II in Pacific—first as battalion medical officer in 43rd Infantry Div. in Philippines, then later served as Division Surgeon 1st Cavalry Division in Japan. Returned to training at Presbyterian Hospital, New York City, for surgical residency to 1952. Then returned home to Lexington practicing General Surgery until January 1, 1986 when I have now retired. Married first to Dorothy Stopher 1952, one daughter. Dorothy died of cancer in 1962. Remarried 1966 to Betty Reed—currently living 636 Raintree Road. We have three grandsons, 6, 5, and 3, living in Olean, NY.

John F. Gay, B.S., Industrial Chemistry; 1940-42, Chemist, Hercules Powder Co., Parlin, NJ; 1942-72, on active duty U.S. Army Chemical Corps; 1972-74, employed by state of California, California National Guard, Fort Irwin, CA; 1974-present, retired—civic and church work.

While with Hercules Powder Company developed cellulose acetate butyrate process from lab to plant products. While with the U.S. Army: 1942-45, duty with troop training in the U.S. One year U.S. Forces China theatre on Mainland China. 1945-50, Office Chief Chemical Officer, Washington, D.C., University of Wisconsin, Physical Chemistry, no degree. 1950-54, U.S. Army Berlin and Frankfurt, Germany. 1954-55, Chemical Corps School (student). 1955-59, Rocky Mt. Arsenal, Denver, CO. Arsenal Operations Of-

ficer for manufacture and loading of nerve gas, mustard gas, and incendiaries. 1959-62, Air University Maxwell Air Force Base, Montgomery, AL staff and faculty. 1962, Armed Forces Staff College, Norfolk, VA (student). 1962-64, staff of Supreme Allied Command Hq. SHAPE, Paris, France. 1964, Industrial College of the Armed Forces, Washington, DC (student). 1964-68, Chief of Staff U.S. Army Munitions Command Dover, NJ. 1968-72, Deputy Chief of State Logistics, 6th U.S. Army, Presidio of San Francisco, CA. 1972, retired from active army in grade of Colonel. 1972-74, joined California National Guard - Deputy Commander, Fort Irwin, CA. Fort Irwin was then a National Guard training post. 1974-86, retired, active in church and civic affairs.

I am also interested in what happened to Harry Zimmerman and Vert Fraser who were friends of mine in the class of 1940 who also received degrees in Industrial Chemistry at that time. I have since lost track of them.

Experiences as a student were largely confined to 16 hour days under Drs. Maxon, Barkenbus, Stewart, and others, whose names I have forgotten. We did have some good relaxing time in the Alpha Chi Sigma room and we used to compete for custodianship of the Ethyl Alcohol storage room.

I remember one morning about 4 a.m. I was running a Grignard for Dr. Barkenbus, which developed an ether leak and started a small fire. Needless to say there was much scurrying around on my part to extinguish the fire. The only damage was to my tweed jacket which was destroyed in the fire. My ego was severely damaged.

Another time three of us had just been given our just comeuppance in class by Dr. Maxon the end result of which was to cause us to do three weeks work over again. One of us (all

three were chagrined and angry) remarked that we ought to feed potassium cyanide to the old man. Just then a voice behind us (Maxon's) said "Why don't you use sodium it is cheaper?". Needless to say three chastened students did the work over and this time it passed.

1941

Alvin C. Isaacs, B.S., Excerpts from his covering letter: I enclose a summary of my life since leaving the University, that might be of interest to my classmates. Some of it may not be very meaningful to people with no military service or a few years under duress of the draft. You are free to publish my address and telephone number (7921 Edinburgh Drive, Springfield, VA 22153 - Telephone: (703) 455-5153). I have lost track of almost all of my 1940-44 classmates, mostly because my career significantly removed me from the purely scientific and engineering fields that many of them followed. My early education at UK was an indispensable ingredient of what I consider to be a successful life.

After departure from UK in 1941, I took a year of graduate study at Georgia Tech and then entered the Army as second lieutenant (ROTC commission) in 1942. I was overseas three and one-half years in WW II, serving in North Africa, Italy, France and Germany. I was commissioned in the Regular Army shortly after the end of WW II realizing a long ambition started at UK.

During my military service I served in numerous stations in the United States as well as Korea and Vietnam. Much of my military time, aside from the nation's wars, was spent in research and development activities in the nuclear weapons area, conventional armaments and automotive vehicles. Schools included the Command and General Staff Col-

lege, Army War College and University of Chicago where I obtained an MBA in 1963. I held various mid and high level command and staff positions. Decorations include the Distinguished Service Medal.

I was placed on retired status in 1973 after attaining the rank of Brigadier General. However, I am far from retired and now lead a very active life in a new career started after retirement from the military.

I am presently the president of a very successful small business which conducts courses and seminars in highly specialized areas of Federal contracting for various Federal agencies and private firms. We enjoy an excellent reputation and are heavily booked at all times, 6-9 months in advance, with no advertising. I enjoy the work immensely, even with 60 hour work weeks and very heavy travel schedule all over the continental United States and Alaska.

I was married four years ago to my present wife, the former Loretta T. Murphy, who puts up with my awful hours and travel schedule, keeps a fine home, and who works alongside me in the business too. I am very proud of my children. I have a daughter (Yvonne) who is a nuclear engineer for Bechtel (Houston), two daughters who are M.D.'s (Laura in Oklahoma City, Linda in Tampa, FL - both married to M.D.'s—how can I go wrong with four doctors in the family?) and a son in the Army Special Forces (Green Berets). All these children went to UK for undergraduate studies. One son, severely handicapped almost from birth, died last year.

I have no plans to retire. My health is fine and life is good as it is. I have no desire to vegetate (for me, that is) into traveling, fishing and the golf course. (To each his own!)

William N. Lipscomb, Jr., B.S., Ph.D., California Institute of Technology, 1946; Civilian, Office of Scientific Research and Development, 1942-46; University of Minnesota: Asst. Professor of Physical Chemistry, 1946-50; Associate Professor, 1950-54; Acting Chief, Physical Chemistry Division, 1952-54; Professor and Chief, Physical Chemistry Division, 1954-59; Harvard University: Professor of Chemistry, 1959-71; Chairman, Department of Chemistry, 1962-65; Abbott and James Lawrence Professor, 1971—present.

He has received honorary degrees from nine universities and the following awards: Bausch and Lomb, Honorary Science Award, 1937; Sullivan Medallion, University of Kentucky, 1941; Sigma Xi, Phi Beta Kappa, Alpha Chi Sigma, Phi Lambda Upsilon, 1949, Honorary Membership in 1976; Sigma Pi Sigma, Phi Mu Epsilon, Distinguished Alumni Centennial Award, University of Kentucky, 1965; American Chemical Society Award for Distinguished Service in the Advancement of Inorganic Chemistry, 1968; George Ledlie Prize, Harvard University, 1971; Peter Debye

Award in Physical Chemistry, American Chemical Society, 1973; Nobel Laureate in Chemistry, 1976; Distinguished Alumni Award, California Institute of Technology, 1977; Senior U.S. Scientist Award, Alexander von Humboldt-Stiftung, 1979.

Following is a list of offices held in scientific societies and award lectures presented: American Academy of Arts and Sciences, elected Fellow 1960; National Academy of Sciences, elected 1961; Guggenheim Fellowships (Oxford University, England, 1954-55, Cambridge, England, 1972-73); National Science Foundation Senior Postdoctoral Fellow 1965-66; American Chemical Society, Chairman, Minneapolis Section 1949; Mineralogical Society of America, 1958; American Physical Society, elected Fellow 1963; Member USA National Committee for Crystallography, 1954-58, 1960-63, 1965-67; American Crystallographic Association, President 1955; Overseas Fellow, Churchill College, Cambridge, England, 1966, 1973; Honorary Member, The Chemical Society (London) 1972; Foreign Member, Netherlands Academy of Arts and Sciences, 1976; Honorary Member, Mathematical Association of America, for Friday evening, August 11, 1978 (a performance of chamber music); Honorary Member, International Association of Bioinorganic Scientists, 1979; International Academy of Quantum Molecular Science (1980); Member, Academie Europeenne des Sciences, des Arts et des Lettres, Paris, 1980; Honorary Fellow, Royal Society of Chemistry (London), 1983.

Award Lectures: Harrison Howe Lecture, Rochester Section, ACS, 1958; Evans Award Lecture, Ohio State University, 1974; Gilbert Newton Lewis Memorial Lecture, California Section, ACS, 1974; Remsen Award, Maryland Section, ACS, 1976; City College of New York Chemistry Alumni Award of Scientific Achievement, 1984 (Symposium).

In addition he has presented over 200 invited lectures world-wide.

Other activities and honors include: The name lipscomite give by J. W. Gruner to an iron Phosphate mineral, 1953; Chairman, Program Committee for 4th International Congress of Crystallography, Montreal, 1957; Associate Editor of Journal of Chemical Physics, 1955-57; Associate Editor of Journal of American Chemical Society, 1959-68; Visiting Committees, Argonne National Laboratory, 1957-65, Brookhaven National Laboratory, 1963-65; Chairman, Panel Area for Structure, Physical Properties and Characterization, NAS-NRC Committee for the Survey of Chemistry (Westheimer Committee), 1964; Visiting Committee for the Department of Chemistry, California Institute of Technology, 1969-73; Board of Trustees, Museum of Science, Boston, MA, 1965-68; Advisory Committee on the Center for Struc-

tural Biochemistry, Brookhaven National Laboratories, 1970; Co-organizer of Conference on Enzyme Mechanisms, Santa Barbara, CA, 1970; Commission Scientifique de Chimie des Instituts Internationaux de Physique et de Chimie, fondés par E. Solvay, 1977; Board of Associates, Linus Pauling Institute of Science and Medicine, 1977; Committee for the Wolf Prize in Chemistry, 1980 and 1981; Organizer, Symposium on Structure-Function Relationships in Proteins, Nucleic Acids and Viruses, University of Minnesota, 1979; Member, Scientific Advisory Board, The Robert A. Welch Foundation, 1982-; Member, Board of Directors, Dow Chemical Company, 1982-; Advisory Committee, The Institute for Amorphous Studies and Consultant to Energy Conversion Devices, Inc., 1983-; Member, Scientific Advisory Board of Daltex Medical Sciences, Inc., 1984-; Member, Scientific Advisory Board of NOVA Pharmaceutical Corporation, 1985-.

Research interests are in the relationship between structure and function, including the relationship of three-dimensional structure and mechanisms of enzymes and other proteins (carboxypeptidase A, concanavalin A, aspartate transcarbamylase, glucagon), and including the relationship of geometric and electronic structures in theoretical inorganic and organic chemistry (boron hydrides, carboranes; electric and magnetic molecular properties, barriers to internal rotation, valence theories of complex molecules, localized orbitals, group theory).

Albert (Al) L. Rhoton, M.S., following graduation with a masters degree in Chemistry in June 1941 I started work at the B. F. Goodrich Company in Akron, OH. Participation in the development of Synthetic Rubber during the war was the beginning of my career in Rubber and Polymer Chemistry and Technology.

I have continued to be involved in this field in many parts of the world since retiring in 1975. Both Mrs. Rhoton (Hazel) and I spend several months each year in foreign countries. Have been around the world twice since retiring and have lost count of countries where we have lived and traveled.

On our way home last fall from the Amazon we stopped in Mexico City for two days. While there we were caught in the great earthquake. Our room was practically destroyed, but we escaped major injury.

Hazel and I will celebrate our 55th wedding anniversary in Ecuador in June where I will be working.

My thesis research at the university was the preparation of an odorless (relatively) mercaptan and some of its derivatives. Finally, Dr. Barkenbus thought I had developed adequate manipulative skill and directed me into a study of "Butyl Mercaptan". After all classes in

Kastle Hall had to be evacuated on two separate occasions because of slight mishaps in my laboratory, he changed his mind. Recent research has shown that not even the skunk likes the stuff and cannot handle it well.

Thomas H. Shelley, B.S. 1941, M.A. 1942. The year of graduate school was one of the most enjoyable of my career. I majored in organic chemistry under Dr. Barkenbus and worked as a graduate assistant under Dr. Baker. I have often felt that I learned more chemistry acting as a graduate assistant than in class. Monitoring the laboratories along with the late Charles Schenker was great sport. One of the students was my future wife.

Of course WW II came along which necessitated a decision as to the immediate future. Dr. Maxson gave us all a lecture, telling us that the country needed chemists more than soldiers. Many companies came by looking for chemists. I chose to go to Akron, OH and work in the B. F. Goodrich research laboratory. One of the first persons I met at Goodrich was Al Rhoton who had been the graduate assistant when I took Qualitative Analysis.

At Goodrich I started out in the analytical laboratory where I found that Professor Stewart's courses in quantitative analysis had well prepared me for the work. After about one year I transferred to the organic synthesis department where I worked on antioxidants for synthetic rubber until the war ended. During this time I married the home economic student mentioned above - the former Charline Lisonby. We are still married. Charline got a job as a tire engineer at General Tire. Obviously trained engineers were in short supply.

At the end of the war I went to Cornell University for work on my Ph.D. I immediately found that the chemistry I had learned at UK was markedly superior to that of the other new grad students from other schools—I had an easy time on the initial "prelim" department exams as compared to most of the other entering grad students.

At Cornell I majored in organic with minors in physical and inorganic. At the end of my first year I persuaded my old friend Charles Schenker from the UK chemistry class to join me. He too found his Kentucky chemistry education to be a great asset.

After receiving my Ph.D. I returned to Goodrich for about two years. However at an organic symposium at the University of Wisconsin, I was introduced to the research director of Johnson and Johnson who persuaded me to come to New Jersey—where I have remained—Charline and I having two children about this time.

At J & J I started as a bench chemist and worked my way up through assistant manager, manager, assistant research director to Director of Research. In doing this I was ex-

posed to adhesives, dermatology, dentistry, basic research in wound healing and skin physiology, fibers and textiles, medical polymers, etc. Since J & J has laboratories all over the world, I did a lot of traveling in Europe, South America and all over the U.S. I particularly enjoyed a series of clinical studies we carried out in the Caribbean to evaluate a sealant to prevent tooth decay—this being necessitated by the requirement of finding populations with little or no regular dental care which could have distorted the data.

My last six years at J & J was as a member of a small group (four; two chemists and two MD's) reporting to the chairman of the board. Our job was to find new science and technology and bring it into the corporation. In this we got involved in the new biotechnology. I visited many university laboratories, new biotech companies, etc., both in the U.S. and Europe; attended scientific and medical meetings, etc. Really a dream of a job for a boy from Kentucky.

At age 65 I promptly retired and find life pretty nice. Once in a while I get back to Lexington and have walked through the chemistry building but I must say things have changed.

1942

Russell A. Hunt, Jr., B.S. 1942, M.S. 1943. Our class was one of the last to start under the old guard—Mighty Maxson, Barkenbus, Mitchell, Bedford and Stewart. I was a town boy and had some familiarity with the University. I can imagine what a trauma it must have been for others who came from far away to take Chemistry. You were handed a printed schedule of what you were going to take—no electives, just the basics you would need for INDUSTRIAL CHEMISTRY. As I remember, there were almost one hundred of us who started this course of study and only a handful finally graduated. Professor Mitchell got you first. He had all of the recitation sections for the chemistry majors. I don't believe that I ever heard a better lecturer than him. He was tough, but very fair. He also greatly reduced the number of chemistry majors. Next year you got Maxson and Stewart. Maxson roared like a bull and made great threats, but was really a softy at heart. Stewart had a most unique, and I thought, logical way of presenting analytical chemistry. The third year was Barkenbus and Bedford. Barkenbus was also an excellent lecturer and really set me on the road to what little chemical research I did in later years. Physical chemistry was not my thing, and despite Bedford's best efforts, it still remains a misery. Looking back, we really had a good, sound foundation given to us. A lot of very good people came out of that era at Kentucky.

Our class was greatly affected by WW II. On Pearl Harbor day, we were in our junior year. We were all concerned about what

would happen and looked hard at all the options available to us. I tried to join the Air Force in a program to operate a photographic processing laboratory for reconnaissance operations. It was then that I found out that my eyesight was so poor (extreme near sightedness) that I would probably never be taken into the armed forces. Looking at my credits, I found that, if I changed from Industrial Chemistry to a straight Chemistry major and went to summer school, I could graduate the next August. Having done this I ran into another problem. I was only 20 years old at that time. No employer would hire you until you were 21. There was an assistantship open in the Organic Chemistry section that I applied for and received. That started a wonderful relationship with Barkenbus and Astle which benefited me more than anything else while I was in school. The following July (1943), I was awarded the MS degree in Chemistry and left academia for the wide world of industrial work.

Jobs were suddenly very plentiful and many companies were recruiting during that period. I was wisely steered by Barkenbus to take a job with the Standard Oil Company (Indiana), now called the Amoco Corporation. They were located in Whiting, IN, in the large refinery that they operated there. I didn't know it then, but I had found a corporate home for the rest of my career. There were already a number of Kentucky graduates working there—J. K. Roberts, M. T. Carpenter, J. E. Seebold, William L. Webb and Walter P. Cropper. A number of other Kentucky graduates came with me or shortly thereafter, including—Wendall P. Cropper, Thomas E. Earle, Stanley P. Stephenson and James Wuellner.

My career in the research department at Standard was a varied one. My first work was on motor oils for military vehicles and submarines. Then there was a period in the refinery working on the production of high octane aviation gasoline. Then back to the laboratory to work on waxes and turbine oils. Then two years were spent as administrative assistant to the director of research. My next assignment was research on gasoline and heating oils. During this period, I was promoted to group leader. About this time, new uses for fuels was a big concern. No one was worried about a crude shortage then. I began to concentrate more in this area and spent the next 10 years working on these problems. Early in this work, I was promoted to Research Associate. In the late 60's, Standard decided to move their research facility from Whiting to Naperville, IL. Since I had always been interested in laboratory design and construction, I was invited to participate in the planning that followed. Soon I was promoted to Facilities Manager at Whiting. My main jobs were to keep the facilities operating in the interim, get

all personnel moved to the new location, and give away the facilities that we had there at Whiting. You haven't lived until you have tried to give away a large facility that's pretty much a drug on the market. Finally little Calumet College took it off our hands, after we gave them \$5,000,000 to do so. After shutting down Whiting, I transferred to Naperville where I was Manager of Engineering and Research Services. Telecommunications was becoming increasingly important in our operations and I was soon transferred to the job of Manager of Telecommunications. Then increases in staff indicated a need for major facilities expansion. I was made Manager of New Construction. After two years on this job, Standard decided to change their retirement plan and made a general offer which I found that I could not refuse. My job was not nearly over, though, and I did want to see it to completion. So, I retired on Friday and came back to work Monday as a consultant in the same position. Eighteen months later I finally retired.

I have had a wonderful personal life as well as a wonderful career. In 1947 I married Bessie Clark Burris of Little Rock, Bourbon County, KY. We have three children—Gail, Judith, and Curtis. They are all married and there are four grandchildren to love. At various times we lived in Whiting, IN; Lansing, IL; Griffith, IN and Naperville, IL. After retirement, we built a home in Hendersonville, NC. We are in the heart of the Blue Ridge country and enjoy the climate very much. I keep busy with golf, gardening, woodwork and genealogy. I still look back with fond memories at my days at U of K.

Raymond L. (Pat) Patterson, B.S., Life member of UK Alumni Association; Student member Alpha Chi Sigma, 1941-42, professional member since; President, Newman Club, 1941-42. Hometown - Louisville, KY. Married, 1943, to Jane E. Cramer, UK '43, of Lexington, KY; four children, eight grandchildren.

1942-45—U.S. Naval Officer, Pacific Theatre; 1945-62—The Proctor and Gamble Company, Cincinnati, OH—Product development and marketing, directed the development of fat supplements for use in animal and poultry feeds; 1962-64—Wilder and Associates, Inc., Cincinnati, OH—Advertising agency, Vice-President and Account Executive; 1964-present, House of Lowell, Inc., Cincinnati and Greenville, OH—Manufacturer of custom cosmetics, specializing in skin and hair care products, President and Director Research and Development.

Active in Cub Scouts, Boy Scouts, Knothole Baseball and various community fund-raising activities, including United Appeal. Chairman Xavier University Forum Series, 1963. Served six years on Finneytown Board of Education, Cincinnati, and as Presi-

dent, 1965.

A big thrill for me came in 1941 when my younger brother, Anthony R. Patterson, also '42, ran as an Independent from the small College of Engineering for President of the student body (Student Government Association). Inasmuch as I was enrolled in Arts and Sciences, the largest college on campus, I became his campaign manager. In the election, we didn't carry A & S, but ran a very strong race there. With a landslide in Engineering, we pulled off a significant upset win. I have always felt that all who were studying in the sciences at the time had a hand in that victory.

1943

Wendell P. Cropper, M.S., I began graduate work in 1941 as graduate assistant to Dr. R. N. Maxson, who was head of the Department of Chemistry at that time. My duties under Dr. Maxson were principally in the area of qualitative analysis. During the first year of graduate work, I took courses under Dr. J. W. Campbell, Dr. M. J. Astle, and assisted Professor J. R. Mitchell during the summer of 1942.

In the fall of 1942, Dr. and Mrs. Hume Bedford provided room and board for me in their home and I was appointed graduate assistant to Dr. Bedford for the year. I also taught a freshman class in chemistry during a part of the year.

Although my academic interest was primarily in physical chemistry and thermodynamics, my M.S. thesis was conducted under Dr. Astle, on polarographic studies of nitro-cresols. I also took a course in Organic Preparation, taught by Dr. Barkenbus. Degree work was completed in July 1943, and I reported to the Standard Oil Company (Indiana) for work on August 2, 1943.

My early work at Standard Oil (now Amoco Corporation) was concerned with analyses of hydrocarbon streams by fractional distillation and studies of physical properties of hydrocarbons including azeotropic behavior of benzene in binary mixtures with hydrocarbons boiling near benzene. Also, I did some P.V.T. work on binary mixtures of benzene and hydrocarbon at relatively high pressures.

From 1946-48, I took a leave of absence from Standard for graduate work at Purdue. I served as a graduate assistant in physical chemistry.

After Purdue, I continued at Standard with more P.V.T. work and some studies of electrical properties of two-phase liquid systems.

In 1954, I was promoted to Group Leader of the Instrument Development Group in Technical Service. The primary function of this group was development of on-stream analyzers for petroleum streams. This activity continued until 1960, when reorganization of the company was completed, with Standard

becoming a holding company and the refining and marketing part of the company became the American Oil Company. In 1960, I transferred to the Engineering Research Department and continued work on development of process analyzers.

I continued in this activity until retirement in June 1981. In 1974, our laboratories moved from Whiting, IN to the Amoco Research Center in Naperville, IL. At the time of my retirement, I was a Research Supervisor at the Center, heading the Instrument Development Group.

Now, a bit of personal history. I was married in 1949. My wife, Barbara, graduated from Purdue in chemical engineering, and subsequently earned an M.S. degree in anthropology at the University of Chicago. She taught anthropology at Northeastern Illinois University from 1965 to 1981.

Our son, Wendell, Jr., is at the University of Florida on a postdoctoral fellowship. Our daughter, Helen, is an attorney, and works for the Legal Assistance Foundation in Chicago. I have one grandson, Matthew, age four months.

I want to close on another personal note. I enjoyed being in the M.S. program at the University of Kentucky and enjoyed my association with Profs. Astle, Barkenbus, Campbell, Bedford, Mitchell, Maxson, Stewart, among others. Also I enjoyed the friendship of many graduate students, including Tom Shelley, Charles Shenker, Wayne McConnell, Russ Hunt, Dirk Verhagen, Stanley Stevenson, Bill Gormley, and others.

1944

James H. Saunders, B.S., I finished my work for the B.S. in chemistry at UK in March 1944, and went to the University of Illinois to work on the government synthetic rubber program, under Dr. C. S. Marvel. I received the Ph.D. in organic chemistry in 1946 and continued there as a postdoc, and as group leader of the rubber program, until July 1947.

I was married to Mary Prickett Carter in April 1946. We had met at the University of Illinois, where she was a graduate student in accounting (M.S. 1945).

After leaving Illinois we moved to Anniston, AL, where I started with the Monsanto Company on July 1, 1947. Our areas of research were benzene pyrolysis (to biphenyl), detergents, phosgene chemistry, isocyanates and polyurethanes. I was a group leader for about 1949-1954.

In 1954, Monsanto and Farben Bayer jointly formed the Mobay Chemical Company, to produce isocyanates and derivatives, plus polyesters, for the polyurethane industry. About twelve of us at Anniston were transferred to Mobay. A plant and lab were built

at New Martinsville, WV. We went there in 1955, where I was assistant director in charge of application (polyurethane) research and customer service. In 1959, our research director went back to Monsanto, and I replaced him. In 1962, we built an application and customer service lab in Pittsburgh, PA. We moved there; my duties included both the Pittsburgh and New Martinsville labs (the latter was then for process research only).

In 1968, I rejoined Monsanto at Pensacola, FL, in the Textiles Division. There I was manager of nylon research at first, then director of research, later director of polyester research and development. In 1981, we got out of the polyester filament business and I moved to St. Louis as General Manager of Technology. In 1983, a corporate reorganization placed our fiber intermediates (acrylonitrile, adiponitrile, hexamethylene diamine, adipic acid) in with the fiber division, and that technology was added to my area.

At the end of 1985, I took early retirement in one of Monsanto's retirement incentive programs. Since then my wife and I have spent much time with children and grandchildren, traveling and enjoying hobbies. Perhaps by the end of this year I will try for at least a part-time teaching arrangement, but thus far we are thoroughly enjoying our "long vacation".

We have four sons, two of whom are married, and four granddaughters. Our youngest son has one more semester to complete to finish his academic work.

Hobbies have been a pleasure and a help to me during the years. Technical writing has been almost a hobby, including authoring one book, coauthoring two, and co-editing two, plus about 75 publications. Now I am tempted to try fiction, which will be much harder for me. Ornithology and target shooting have also provided relaxation and enjoyment. My

wife and I share enthusiasm for antiques, though she is the real expert in that area. We have had many delightful antiquing trips together. We both enjoy traveling, as well.

I wish you and the Department all the best.

T. A. (Ted) White, B.S., (M.S. 1949), I enjoy receiving and reading Chem-news. Your 1985 Spring issue was of particular interest for it featured a few well-chosen words from my brother, Lewis Olen, who graduated with a B.S. in Industrial Chemistry in 1938.

I too have a B.S. in Industrial Chemistry having received it with the class of 1944 although I had to leave UK in April to join the Navy. Following two and one-half years of service I returned to UK in 1946 to pursue a Master's in organic chemistry. In 1948, I joined the Exxon organization at its Baltimore Refinery. During the 1946-48 period, Lyman Parrigin, an Exxon annuitant, and I did our research under the direction of Dr. J. R. Meadows. The project dealt with the desulfurization of oil recovered from Colorado shale. Guess we were thirty years ahead of our time on investigating alternative sources of energy!

There isn't much I can add to what already has been said by others about the fine training we received from Professors Stewart, Bedford, Barkenbus, et al. Barkenbus taught organic without a textbook. I don't think I every knew a chemistry graduate from another school who had a similar experience. And the floors in Kastle Hall were always clean because Professor Stewart insisted on including floor sweepings in problem solving!

I have had a varied career in Exxon having left the chemistry side by 1960 for work in marketing and public affairs areas. I have been a part of the Exxon Chemical Company organization at its headquarters in Darien, CT for several years.

While in Baltimore, an old Navy buddy introduced me to the girl to whom I have been

married for the past 35 years. Grace and I have three children, Ted, Gary, and Cindy, and one beautiful granddaughter. For some reason, we were unable to persuade any of our children to attend UK, probably because Grace graduated from Boston University, and none wanted to show favorites. So we count Lehigh, Penn State, and Syracuse among our family of schools. I follow UK sports as best I can given the space allocated to sports south of the Mason-Dixon line by The New York Times.

Baltimore Refinery is remembered especially for one reason. In 1957, Exxon decided to sharply curtail operations at the refinery. Although I worked in the lab, I was asked to develop a program to assist a work force of about 1200 in finding local employment. My first two days were spent at the Baltimore City Library searching for any leads on what at that time was a new experience for many of us. Pickings were slim but somehow I managed to get through it. Little did I know then that organizational changes would follow me throughout the balance of my Exxon career.

Perhaps one of the more interesting non-scientific assignments I have had was to participate in the Exxon name change program that took place in 1972-73. It was gratifying to be a part of this historical event for the company. And it was a lesson in group dynamics!

Many of your readers will understand when I say that time has a way of catching up with us. There are no exceptions. So, in August I hope to achieve two milestones—complete 38 years with Exxon and join the ranks of the retired. You see, Exxon Chemical Company is undertaking an organizational change! And it will continue to be a great company.

Thanks for the opportunity to contribute a few words for Chem-news. I look forward to reading news about fellow classmates from the early forties.

Alumni News

H. Phillip Orem, B.S. 1932, M.S. 1934, visited the Department on May 13, 1985. He left one of Dr. Tuttle's books for the Department's collection of historical documents and plans to send books for the library.

Dennis A. Ayres, B.S. Industrial Chemistry, 1941, is retired and living at 10 Compass Point, Hilton Head, SC.

Richard H. Hunt, B.S. Industrial Chemistry, 1945, received an M.S. 1947 and Ph.D. in 1949 from the University of Wisconsin. He joined Shell Oil Company in August 1949 at the Houston Refinery Research Laboratory. Worked in Oil Process research,

radiochemistry, analytical research. Group leader, Physics (analytical mass spectrometry) for 15 years. Transferred to Head Office 1970, and to Shell Development, 1974. Last 10 years at Westhollow Research Center in Analytical Department—Radiochemistry, process analytical research and analytical chemistry in Toxicology Lab. Retired February 1, 1985. Living in Houston with wife, Martha (University of Texas). Two children, Earl Richard Hunt, Austin, TX and John Russell Hunt, Houston, TX (both graduates of Rice University).

William C. Golton, B.S. 1957, received an

M.S. in 1959 and a Ph.D. in analytical chemistry in 1961 from the University of Iowa. He is a Senior Research Associate at E. I. duPont de Nemours and Company in Wilmington, DE.

Joe W. Vaughn, M.S. 1957, Ph.D. 1959, was appointed Chairman, Department of Chemistry, Northern Illinois University in De Kalb.

Casimir Gnanadickam S. J., postdoctoral appointment with W. T. Smith in 1963 and 1971 is now Archbishop of the Roman Catholic Church at Madurai Archdiocese, India. He wrote: I feel a bit guilty. After 15 years

of teaching at St. Joseph's College, Tiruchirappalli, India, I have been drafted into Church Administration. I was named Archbishop recently. My hope is to involve church educational institutions in development (food, health) through scientific research.

Lawrence S. Waldman, B.A. 1964, received an M.D. from the University of Kentucky, College of Medicine in 1968. He responded: I spent 1969-71 in the United States Public Health Service where I received a Presidential citation of excellence. I completed an internship and residency in Pediatrics at the University of Colorado Health Sciences Center (internship 1968-69, residency 1971-72). I completed a fellowship in Pediatric Developmental Disorders at the John F. Kennedy Center in 1973. I joined Kaiser Permanente of Colorado in 1973 and became Chief of Pediatrics in 1977. I currently have the position of Assistant Clinical Professor on the faculty of the University of Colorado Health Sciences Center.

Norman J. Juster, Visiting Professor 1965-66, retired as Dean of Physical Sciences, Pasadena City College in 1985 and was appointed Professor of Chemistry in the Department of Chemistry and Biochemistry at UCLA.

Don Nelson, B.S. 1965, received a Ph.D. in Mathematics from UK in 1970. He wrote: For the past several years (1980-84) I've had joint responsibilities with the Department of Math and the Department of Computer Science at Western Michigan University. In April of 1984 I was transferred completely to Computer Science and was appointed Chairman of the Department. From 1978-1983 I served as Associate Chairperson of the Math Department.

Phil Baedecker, M.S. 1964, Ph.D. 1967, was appointed Chief, Branch of Analytical Chemistry, U.S. Geological Survey in 1981. The Branch has approximately 140 employees, with laboratories in Reston, VA, Denver, CO, and Menlo Park, CA. Prior to joining the U.S.G.S. in 1974, he held postdoctoral positions at M.I.T. and U.C.L.A.

David S. Frost, B.A. 1967, received an M.D. from UK in 1971. He completed his internship at the Jacksonville, FL Naval Hospital in 1972. He was stationed at the Naval Hospital, Rota, Spain, 1972-75. Completed a family practice residency at the Naval Hospital in Charleston, SC in 1977 and served as staff family physician there from 1977-81 and Chairman of the Department of Family Practice from 1981-84. Currently he is Chairman of the Department of Family Practice and Director for Medical Services at the Naval Hospital at Camp Pendleton, CA and Specialty Advisor to Naval Medical Command for Family Practice.

Michael S. Lupin, postdoctoral fellow 1968-69, held a postdoctoral appointment with

Professor J. C. Bailar at the University of Illinois. Since 1970 he has been a principal research scientist with Dead Sea Works, Ltd. in Beersheva, Israel, which is a major producer of potash (KCl) and other minerals extracted from the Dead Sea. He has been involved in R & D and production, quality control during this period. From 1981-83 he was on sabbatical at the International Fertilizer Development Center at Muscle Shoals, AL.

Dale Blankenship, B.S. 1969, left Lilly Research Labs in Indianapolis to take a position as Research Chemist II at Merrell Dow Research Institute in Cincinnati, OH.

Glen Possley, Ph.D. 1969, accepted a position as Vice-President of Operations at United Technologies Corporation in Carrollton, TX, on February 1, 1985 after two years with Motorola in Mesa, AZ. He said: Family growing since I became a grandfather in March 1985, (wife's son blessed with his first born but I'm not ready for the grandfather bit).

Chingshun Cheng, M.S. 1976, M.S. in chemical engineering, 1980, joined IBM Austin Assembly Process Development Area in April 1985. His current job involves the development of surface mount technology in the assembly-rework area.

Ching-mei Sherry Song, M.S. 1977, obtained a Master of Radiological Medical Physics in 1980. She passed the examination sponsored by the American Board of Radiology in the spring of 1985 and is a certified medical physicist. Her husband (Dr. Ban-huat Song) works as GC/MS Manager for a consultant company in Rockville, MD. They have a son, Singalex (8 years old) attending grade school at Samuel Chase Elementary School in Fort Washington, MD.

Larry R. Williams, B.A. 1977, received an M.D. cum laude from the University of Louisville School of Medicine. He is now an anesthesiology resident at the Medical University of South Carolina. He urges: Go Big Blue!

Meledath Govindan, M.S. 1978, received a Ph.D. in 1981 from the University of Georgia. He has accepted a position in the Division of Science and Mathematics at the College of the Virgin Islands in St. Thomas after serving on the faculty of Wesleyan College in Macon, GA for four years.

Anne Rogers Maurer, B.A. 1978, received her M.D. in 1985 from the University of Louisville School of Medicine. She has an internship in internal medicine and residency in anesthesiology at the University of Louisville Affiliated Hospitals.

Daniel T. Goodin, M.S. 1979, is a Senior Scientist with GA Technologies in San Diego, CA. He is engaged in studies of high temperature materials for advanced fission reactor designs in a project funded by the U.S. Department of Energy. During 1985, he was assigned to Kernforschungsanlage (German

Federal Nuclear Research Institute), Jülich, West Germany, as part of a technology transfer agreement between the U.S. and West Germany.

Jane Eldred Goodin, M.S. 1979, recently left her position with IMED Corporation in San Diego (manufacturer of medical infusion devices) supervising Quality Control Chemistry Lab and developing analytical techniques for plastic and rubber raw materials and finished devices. She accompanied for husband, Dan, on assignment in West Germany.

Jaweed Ashraf, Ph.D. 1980, is Applications Chemist for Delsi Inc. @in Fairfield, NJ.

Blake W. Townsend, B.A. 1980, is completing his program at the School of Veterinary Medicine at Auburn University. He was elected to Phi Zeta National Veterinary Honorary and also named Vice-President of the Auburn Chapter, an honor which goes to the student ranking first in the junior class. Also, he was named the outstanding freshman veterinary student and received the Capt. George W. Mobley Award for scholastic achievement.

William E. Bowers III, B.S. 1981, is a forensic chemist with the Kentucky State Police Laboratory in Frankfort.

Jim Feix, Ph.D. 1981, is now Research Assistant Professor in Radiation Biology and Neurology at the Medical College of Wisconsin.

Sandy Farmer, M.S. 1982, Ph.D. 1984, is completing a successful postdoctoral fellowship in 2-D NMR at the Australian National University.

Robert Dorzback, B.A. 1984, is back in Louisville working as a surgical technician at Norton-Kosair Children's Hospital after enjoying a four-month bicycle tour of Europe (2800 miles in eight countries). He worked two jobs during 1985—the hospital and an engineering position with McKesson Environmental systems. He studied for and passed the Engineering-In-Training examination and plans to seek employment as an engineer.

Barry Gillespie, B.S. 1984, is employed at the United Coal Company Research Corporation in Bristol, VA, doing research on a DOE funded contract involving a mild gasification of coal. He spends about half his time doing research, and about half time writing monthly, quarterly and topic reports. He plans to go part-time to nearby East Tennessee State University to work on a degree in business administration.

Troy Harmon, B.S. 1984, won one of the Oswald Awards in physical sciences. He is pursuing a Ph.D. degree in physical chemistry at Cornell.

Beth Holland Brubaker, M.S. 1984, is working at Arkansas Eastman in Batesville, AR.

Susan (Alkhoja) Toth, B.A. 1984, is work-

ing at Commonwealth Technology in Lexington. The company is involved in environmental analysis, primarily water quality.

Janina Baranowska-Kortylewicz, Ph.D. 1985, has a research position at Harvard Medical School.

Dan Pawley, M.S. 1985, has taken a position with Dow Corning in Elizabethtown, KY.

Andrzej Rajca, Ph.D. 1985, has won the prestigious Miller Fellowship for Basic Research at the University of California, Berkeley and will be sponsored by Professor

Andrew Streitwieser, Jr.

Nancy Youtsey, M.S. 1985, works at the Center for Environmental Quality Assurance, Research Triangle Institute in North Carolina.

Deceased Alumni

Dr. James R. Vogt, Ph.D. 1966, died August 1985. He was Associate Director of the Environmental Research Center at the University of Missouri in Columbia.

Margaret E. Griffing, B.S. 1939, M.S. 1940, died January 18, 1985 in Bowling Green, KY. She received a Ph.D. in analytical chemistry from Purdue. In 1945 she joined Ethyl Corporation in Ferndale, MI and retired in 1981 as a senior research associate.

Student Awards

The following awards were made possible by your gifts—from alumni, friends, and industry during the past two academic years.

Undergraduate Awards 1984-85

Robert M. Boyer Memorial Fund:

Undergraduate Seminar Poster Session Awards:

- First Prize: Everett Horn, \$50
- Second Prize: Philipp Niedenzu, \$30
- Third Prize: Dwayne (Jackie) Jarrell, \$20

Thomas B. Nantz Tuition Scholarships:
Mark Scheuer, Academic Year 1985-86
Ross Shipe, Fall 1985
James Goodrich, Fall 1985

Stephen Harris Cook Undergraduate Summer Research Fellowship:
Cynthia Tackett, \$800

Meredith Award to Outstanding Senior:
Jeffrey D. Hord, \$100

Alumni Development Fund:
Undergraduate Service Award:
Jeffrey D. Hord, \$50

American Institute of Chemists Award:
Erik P. Sandefer

Analytical Chemistry Award:
Cecilia M. Clarke

Merck Index Award:
Steven B. Edelstein

CRC Handbook Award for Freshman Chemistry:
Thomas O. Hahn
David J. Sigda
Susan C. Harned

Graduate Student Awards 1984-85

Col. A. S. Behrman Fund:
100% Plus Award: Ganesan Vaidyanathan, \$100
Outstanding Teaching Assistant: Christine Schupbach, \$100
Outstanding Graduate Student Research: Andrzej Rajca, \$100

Undergraduate Awards 1985-86

Robert M. Boyer Memorial Fund:
Undergraduate Seminar Poster Session Awards:
Vicki L. Abbott, \$50
Mark F. Huff, \$50

Thomas B. Nantz Tuition Scholarships:
Kim R. Warner, Academic Year 1986-87
Charlene K. Haertzen, Academic Year 1986-87

Stephen Harris Cook Undergraduate Summer Research Fellowship:
Cecilia Clarke, \$800

Meredith Award to Outstanding Seniors:
Robert D. Stapleton, \$100
David M. Larson, \$100

Alumni Development Fund:
Undergraduate Service Award:
Mark F. Huff, \$50

American Institute of Chemists Award:
Thomas B. Gold

Analytical Chemistry Award:
Vera L. Sheen

Merck Index Award:
Vicki L. Abbott

CRC Handbook Award for Outstanding Achievement in Freshman Chemistry:
Charles Sulfredge

Graduate Student Awards 1985-86

Col. A. S. Behrman Fund:
100% Plus Award: Peter Nickias, \$100
Amy R. Howell, \$100
Outstanding Teaching Assistants:
Linda M. Osborne, \$100
Diane E. Vance, \$100
Outstanding Graduate Student Research:
Linda M. Osborne, \$100
William J. Sartain, \$100

Ashland Oil Foundation Summer Fellowships

Funds provided by the Ashland Oil Foundation supported seven summer fellowships to the following graduate students in 1985: John F. Davis, working on organometallic cumulenes; James Goodrich, studying the chemistry of ligands coordinated to organometallic moieties; Michael Rutherford, interested in application of computers to instrumentation; Mark Scheuer, research in

analytical chemistry; Ross Shipe, studying unstable sulfur molecules; Joseph Wyse, continuing studies of the effects of metal ions on red blood cell membranes; and Mary Anne Yacko, using NMR spectrometry to study transport of ions across cell membranes.

Four \$1,125 fellowships were awarded to the following students in 1986: John Davis, continuing his study of organometallic

cumulenes, Charlene Haertzen, an undergraduate, is exploring the synthesis of specific molecules as "biomarkers"; Kevin Harbol, using mass spectrometry to study the structure of sulfur compounds in coal; and David Wenstrup, studying the effects of mercury and bromine in Alzheimer's disease by use of neutron activation.

News from the Faculty and Staff

Clifford Black, head storekeeper, had a stroke June, 1986 and died of a heart attack July 3.

Carol Brock was on leave the Spring Semester 1985 at Northwestern University. She was elected to a three-year term 1986-88 on the U.S. National Committee for Crystallography, a committee that represents American crystallography internationally, and especially in its interactions with the International Union of Crystallography. June 1986, she attended the annual meeting of the U.S. National Committee which coincided with the annual meeting of the American Crystallographic Association which was held in Hamilton, Ontario, Canada. She presented a paper and served on a panel at the meeting.

D. Allan Butterfield moved from his position of Director of General Chemistry to Director of Graduate Studies in 1985. He developed a new colloquium: "Membrane Science Colloquium". Outstanding speakers from several countries expert in both biological and synthetic membranes have presented lectures to a group of UK faculty and students. Several joint research projects have evolved from the colloquium. He was a session chairman for environmental chemistry and presented a paper at the Southeastern Regional ACS Meeting in Raleigh, NC, 1984. He presented invited lectures on spin labeling of membranes at the UCLA Symposium on Membrane Skeletons and Cytoskeletal-Membrane Associations, Park City, UT, 1985; the Eighth International Conference on ESR in Denver, CO, 1985; the Fourth Conservative Health Science Research Conference, Santa Clara, CA 1985; and the Canadian Federation of Biological Societies, Guelph, Ontario, Canada, 1986. He also presented seminars at the University of Cincinnati, University of Maine, and Indiana-Purdue University, Indianapolis. He has a joint research grant with W. T. Smith from the Department of Defense for \$238,647 (1985-88) entitled: A New Concept in Multi-Component Decontamination of Aircraft". He also has a grant from the Dreyfus Medical Foundation for Membrane Studies in Sickle Cell Disease. He has taken family vacations in San Francisco and Washington, DC. His daughter, Nyasha, toured Spain for two weeks with her high school Spanish class. She was very ill in the fall of 1985 but recovered and recently was recognized as an outstanding student at Tates Creek Senior High School. His wife, Marci, continues as an R.N. at Cardinal Hill Hospital.

Dennis Clouthier has received grants from the Petroleum Research Fund, the Research Corporation, and recently a grant from DOE for \$197,000 for the study of "Laser Spec-

troscopy of Combustion Intermediates". June 1-23, 1985 he conducted research at Herzberg Institute of Astrophysics, National Research Council of Canada, Ottawa. He and four of his graduate students attended the Forty-First Annual Molecular Spectroscopy Symposium in Columbus, OH, June 1986.

Bill Ehmann, during June 1986, presented an invited plenary lecture and, in addition, contributed a poster presentation at the Seventh International Conference, Modern Trends in Activation Analysis in Copenhagen. In 1985 he presented papers at the Symposium on Analytical Chemistry in Pretoria, South Africa, the Symposium on Nuclear Analytical Chemistry in Halifax, Nova Scotia and the Symposium on the Biology and Toxicology of Metals at Brookhaven National Laboratory. Other group papers were presented at the Meeting of the Kentucky Academy of Sciences in Morehead, KY and the 191st National ACS Meeting in New York, April 1986. Bill also presented seminars at the University of Cincinnati and Berea College this spring. He is planning a trip with his wife, Nancy, in late August and early September to China where he will present an invited paper at the International Conference on Nuclear and Radiochemistry in Beijing. His research group is still involved in research on Alzheimer's disease and ALS under support from NIH and the Muscular Dystrophy Association. His youngest child, Kathleen, graduated from UK in clinical dietetics, May, 1986 and will intern at the UK Medical Center.

Bob Guthrie, continues as Chairman of the Department. He presented an invited lecture at the University of Tennessee, April 23, 1985. He attended the National Organic Symposium, Newark, DE, June 1985 and the 33rd General Assembly of the International Union of Pure and Applied Chemistry in Lyons, France, September, 1985 to finalize a mechanistic models symbol system, which is based on proposals published by Bob. He attended the annual meeting of Chemistry Chairmen of Southeastern Ph.D. granting universities, April, 1986. He participated in the Gordon Research Conference on Radical Ions in Plymouth, NH, June, 1986. He was elected to the Presidential Search Committee to replace Dr. Singletary, who is retiring in 1987. The committee is composed of the UK Board of Trustees and faculty members.

Woody Hammaker took a two-month freighter ship to several ports and countries in South America. His wife, Evelyn, died July 23, 1985. The Hammakers became University Fellows and established a Fund to aid Handicapped Students. Contributions to the fund may be made through the University of Kentucky Development Office.

Jim Holler attended the Pittsburgh Conference on Analytical Chemistry in Atlantic City, 1984, in New Orleans, 1985 and Atlantic City, 1986. He has been serving a three-year term as a member of the Instrumentation Advisory Board of **Analytical Chemistry**, which involves determining the nature of the articles that will appear in the journal. He also attended the national meeting of the ACS in Chicago, September 1985 where he chaired a session and presented a paper. He is building a new log house near Stamping Ground, KY.

Bob Kiser attended the national meeting of the American Society for Mass Spectrometry in San Antonio, TX, May 26-June 1, 1984. In February 1985 he conferred with officials at Miami University, Oxford, OH on the computerization of student records for the University of Kentucky. During the last week of May 1985, he participated in the annual meeting of the American Society for Mass Spectrometry in San Diego, CA. He vacationed with his wife, Barbara, in Japan, May 1986. He attended the Cullinet School of IDMS/R Database Concepts and Facilities, Atlanta, GA, June 1986. Beginning June 1, 1986, Bob is on a 15-month "loan" to the Registrar's Office to act as Project Director for the implementation of the University's new Student Records and Registration (SRS) System, purchased from Information Associates. This new computerized system will be both an on-line and a batch system and will be the first large system to be activated under the University's new relational database management system. The new SRS system should provide a modern and fast means of maintaining admissions, registration, drop/add, grading, financial aid, and degree audit records, as well as providing transcripts and assisting in alumni and development activities, billings and collections, advising, etc. This is the first step in a significant effort by the University to modernize fully its record-keeping and reporting activities across all of the sectors of the University. Kiser continues as Director of the Mass Spectrometry Center and as research advisor to his graduate students in the area of mass spectrometry.

Beth Kleppinger, who received her Ph.D. degree in 1984 gave birth to Benjamin Robert Kleppinger, January 16, 1986. Presently, she is serving as a visiting assistant professor in our department. She will be an Assistant Professor at Berea College this coming year, teaching physical chemistry, quantitative analysis, and instrumental methods.

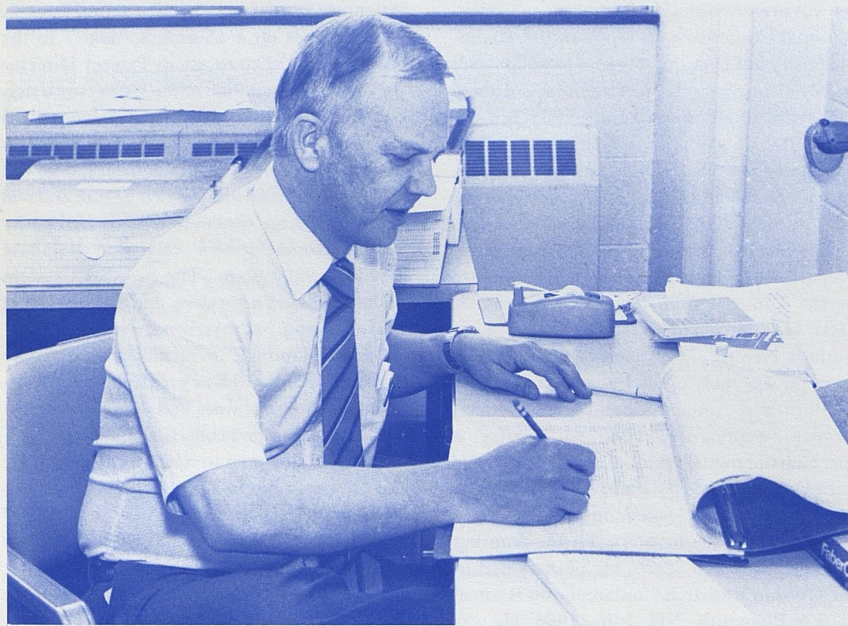
J. R. Meadow, has moved to 500 Paisano, N.E., Apartment 339, Albuquerque, NM 87123. His wife, Margaret, died in September 1985.

Kurt Niedenzu, presented a paper "Reaction of Triorganylboroxins with Pyrazole and Related Studies" at the ACS Meeting in New York, April 1986. He has a \$261,000 grant from the Office of Naval Research for studies on macromolecules derived from pyrazolylboron.

Jim O'Reilly has co-authored with Gary Christian the second edition of "Instrumental Analysis" published by Allyn and Bacon, 1986. The first edition has sold nearly 24,000 copies since 1978. In addition, Piccin Editore of Padua printed an Italian translation of the first edition, "Analisi Strumentale" in 1985. The First Edition was also translated into Chinese by Dr. Wang Zhen-di and Wang Zhen-pu of the University of Peking, and a Malaysian edition is being prepared by a publisher in Kuala Lumpur.

He has continued soccer refereeing, doing more than 60 games in 1985 at the youth, high school, and college levels—including a regional final game in the State high school soccer tournament.

He gave talks at Earlham College, Georgetown College, Northern Kentucky, the University of Louisville, and Wilmington College and presented papers at three Regional ACS meetings.



Dr. Merle Pattengill, Guggenheim Fellow 1985-86

Merle Pattengill received a \$19,000 Guggenheim Fellowship for the 1985-86 academic year. He took a sabbatical to conduct research on reaction dynamics with Richard Zare at Stanford University. He will take an additional leave 1986-87 to pursue work at Stanford on a NASA grant for "Dynamic Studies of Chemical Reactions Important to the Operation of the Aeroassisted Orbital Transfer Vehicle".

G. W. Pope, who received his Ph.D. degree in 1960 and retired from IBM in Lexington, is a part-time instructor in our department mainly in analytical chemistry. He is treasurer of the Lexington Section of the ACS.

Bill Plucknett was awarded a Kentucky Colonelcy for "outstanding contributions" to higher education in Kentucky. He and his wife, Evaline, have been traveling extensively throughout the United States.

Jack Selegue was promoted to the rank of Associate Professor with tenure, July 1986. He presented an invited contribution to the Symposium on Modern NMR Spectroscopy at the Inorganic/Organometallic Chemist at the 68th Canadian Chemical Conference June 3, 1985, Queen's University, Kingston, Ontario, Canada. The title of his presentation was 'Stereochemically Non-rigid Organotransition Metal Complexes Studied by Two-Dimensional NMR Spectroscopy'. He and his students have presented 13 papers on his transition-metal complexes at the following meetings: 25th Experimental NMR Conference, April, 1984, Wilmington, DE; Gordon Research Conference on Organometallic Chemistry, August, 1984, Andover, NH; 16th Southeastern Magnetic Resonance Conference, October, 1984, Lexington, KY;

Southeast Regional ACS Meeting, October, 1984, Raleigh, NC; Kentucky Academy of Science Annual Meeting, November, 1984, Frankfort, KY; IMMR Third Annual Program Review, March, 1985, Lexington, KY; ACS Great Lakes Regional Meeting June 1985, West Lafayette, IN. In addition he has presented seminars at Centre College, University of Louisville, Morehead State University, Borg-Warner Chemicals, Inc.,

Washington, WV, Washington University, University of Missouri-Columbia, Murray State University, West Virginia University, Indiana University, and Ohio State University. His research is funded primarily by a grant of \$168,000 for 32 months from the Department of Energy—"Metallacumulenes and Carbide Complexes." He is also participating in grants from the Petroleum Research Fund, Consortium for Fossil Fuel Liquefaction Science, and Engelhard Industries and Johnson Matthey, Inc. He was the Social Chairman of the Lexington Section of the ACS, 1984-85.

Stan Smith is serving only one-quarter time in the Chemistry Department. In July of 1985 he was appointed Director of Instrumentation for the new Magnetic Resonance Imaging and Spectroscopy Center (MRISC) established in the Medical Center. In that capacity Stan was one of the co-authors of a proposal to the Markey Foundation which resulted in a grant of 3.1 million dollars for the purchase of a 300 MHz spectrometer, one of the worlds first 4.7T 33 cm bore multi-nuclear imaging and spectroscopy animal research units, and the construction of a 4.0T human research unit. The latter will be one of the first three such units in the world. Stan's present office is located in the old Pharmacy Building (renamed the Slone Building) the first floor of which was renovated for the temporary use of the Magnetic Resonance Center (after Pharmacy moved into a new building on Rose Street). Present plans call for Stan and the MRISC to move into a new \$3.5 million building to be built north of the medical center in the next few years and Stan has been quite busy meeting with architects on that as well as installing all his new equipment.

During this time Stan also published a dozen papers in both spectroscopy and imaging including an A pages cover article in Analytical Chemistry (on imaging) which subsequently became a chapter in an ACS monograph. Stan also continues to teach various NMR courses around the country including special courses at the National Cancer Institute and for NMR Concepts as well as for Varian. Stan also served as a consultant for Technicare and on an NIH Special Study Section reviewing equipment proposals, co-chaired the SE Magnetic Resonance Conference here in Lexington (with Allan Butterfield), chaired a special NMR Imaging Symposium at the Eastern Analytical Symposium, and gave a number of invited talks.

Outside the lab Stan continues to be active in SCUBA diving having spent some time diving in Canada and for a week out in the Dry Tortugas, as well as several trips into Bonne Terre Mine below St. Louis. He is now a certified Divemaster and Assistant Instructor.

Tom Smith was a visiting professor at the

University of Maine, Summer 1985. He presented a paper on new anticancer platinum compounds at a poster session at the National Medicinal Chemistry Symposium, Chapel Hill, NC, June 1986. He has a joint grant with Allan Butterfield for \$238,000 from the Department of Defense to study the multi-agent, surface decontamination of aircraft. He was selected the Department of Chemistry "Teacher of the Year", 1985, sponsored by the ACS Student Affiliates.

Steve Yates was promoted to full professor, Spring 1985, and assumed the position of Director of General Chemistry in the Fall of 1985. He spent two months during the summer of 1984 and one month of 1985 working at Lawrence Livermore National Laboratory in the Nuclear Chemistry Division. He presented invited talks at: the Twentieth Winter School on Physics—Selected Topics in Nuclear Structure, in Zakopane, Poland April, 1985; the Symposium on Recent Advances in the Study of Nuclei Off the Line of Stability - ACS Division of Nuclear Chemistry and Technology, National ACS Meeting, Chicago, September, 1985; the International Conference on Nuclear Structure, Reactions, and Symmetries, Dubrovnik, Yugoslavia, June, 1986. He presented seminars at Ohio University, Athens, and Brookhaven National Laboratory. He co-authored ten other papers at various meetings. He is in the third year of a NSF grant (with McEllistrem, Weil, and Kovash, Physics) Total 3-year amount: \$700,000. Steve served as Chairman of the Lexington Section of the ACS for 1985-86. He received funding for international research between UK and the Institute of Isotopes of the Hungarian Academy of Sciences, Budapest, Hungary, from the NSF, \$34,500 (1986-89) with R. A. Meyer (LLNL) and Gábor Molnár (Budapest), who is visiting UK and working with him for 18 months. They also had another (3 months) visitor from Budapest as part of this program. He has made one trip to Budapest under this program. His wife, Linda, is now selling coats and dresses at Stewart's Department Store.

Personnel Changes

Leonidás G. Bachas, Assistant Professor, starting academic year 1986-87, received a Ph.D. degree January 1986, in bioanalytical chemistry from the University of Michigan. He received an M.S. in analytical chemistry, August 1983, and an M.S. in Oceanic Sciences, December 1985 from the University of Michigan. His B.S. was obtained July 1981 from the University of Athens in Greece. He has several publications coauthored with his research advisor, Dr. Mark E. Meyerhoff.

Phil Fanwick, Assistant Professor, accepted a position as Director of the Crystallographic Laboratory in the Depart-

ment of Chemistry, Purdue University.

Debbie Godby, receptionist, resigned to take a position with the U.S. Post Office. Jennye Williams has been employed to replace Debbie.

Thomas F. Guarr, Assistant Professor, effective academic year 1986-87, received his M.S. 1981, Ph.D. 1984 from the University of Rochester. His B.A. was obtained in 1979 from Benedictine College, Atchison, KS. Since 1984 he has been a postdoctoral fellow in the Department of Chemistry, California Institute of Technology with Dr. F. C. Anson. He has several publications coauthored with his Ph.D. advisor Dr. G. L. McLendon. His research interests are in electrochemistry, photochemistry, and electron transfer reactions in organized media.

John Layton, NMR Spectroscopist, who joined out staff in 1975 has resigned to accept a similar position in the Magnetic Resonance and Spectroscopy Center in the University of Kentucky Medical Center. He has been replaced by Claude Dungan, who worked in our department in the Mass Spectrometry Center and the NMR Center, 1969-74.

Bill O'Brien, computer analyst and programmer retired June 28, 1985. **Ben Graves**, formerly with the Computing Center at Purdue has been employed to replace Bill.



Dr. John P. Richard, Assistant Professor, 1985

John P. Richard, accepted an Assistant Professorship effective the 1985-86 academic year. He received a B.S. in biochemistry in 1974, and a Ph.D. in chemistry in 1979 from Ohio State University. From 1979-82 he was a postdoctoral fellow at Brandeis University, and a Research Associate, 1982-84 at the Institute for Cancer Research, Fox Chase Cancer Center. He spent the 1984-85 academic year as a Herchel Smith Fellow in Organic Chemistry at the University

Chemical Laboratory, Cambridge University. He has published over twenty papers in his field of research, which is concerned with the mechanisms of enzyme catalyzed reactions. He has received a Research Corporation grant to support his research. He attended the Bruice/Jencks Symposium the week of October 20, 1985.



Dr. David S. Watt, Professor, 1985

Dr. David S. Watt has joined the faculty with a joint appointment in the College of Pharmacy and Department of Chemistry. He received a B.A. from Dartmouth College in 1967, an M.A. in 1969 and a Ph.D. in 1972 from Harvard University, working with Dr. E. J. Corey. He taught at the University of Virginia 1969-71. He was a postdoctoral fellow at Harvard with Dr. K. Block, 1972-73. From 1973-79 he was an Assistant Professor at the University of Colorado. He was employed as Senior Research Scientist at Pfizer, Inc. 1979-80 when he accepted a position as Associate Professor at the University of Wyoming in 1980. He joined our faculty in the Fall 1985. His research interests involve the development of new synthetic reactions and the applications of these reactions to synthetic problems involving natural products. His research is supported by grants from NIH, DOD, and private industry. He attended the national meeting of the ACS in Chicago, September 1985. He and three of his graduate students presented papers at the regional ACS meeting in Bowling Green, OH, June 1986. He presented seminars at Clemson University, British Oxygen Corporation and Eli Lilly and in August, he will present papers in Moscow, USSR and The Hague, The Netherlands under an NSF travel grant.

Information Please

Name _____

Degree and Year _____

Home Address (if different from that on this mailing) _____

ZIP _____

Your present position or title _____

Organization _____

ZIP _____

Degrees received from other institutions after leaving U.K. _____

News concerning your career and other news of interest for the next Newsletter _____

Features you would like to see in the next Newsletter _____

Please return to: Dr. Robert D. Guthrie
Department of Chemistry
University of Kentucky
Lexington, Kentucky 40506-0055

Department of Chemistry
University of Kentucky
Lexington, Kentucky 40506-0055

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID
LEXINGTON, KENTUCKY
PERMIT NUMBER 51

ADDRESS CORRECTION REQUESTED
Return postage guaranteed