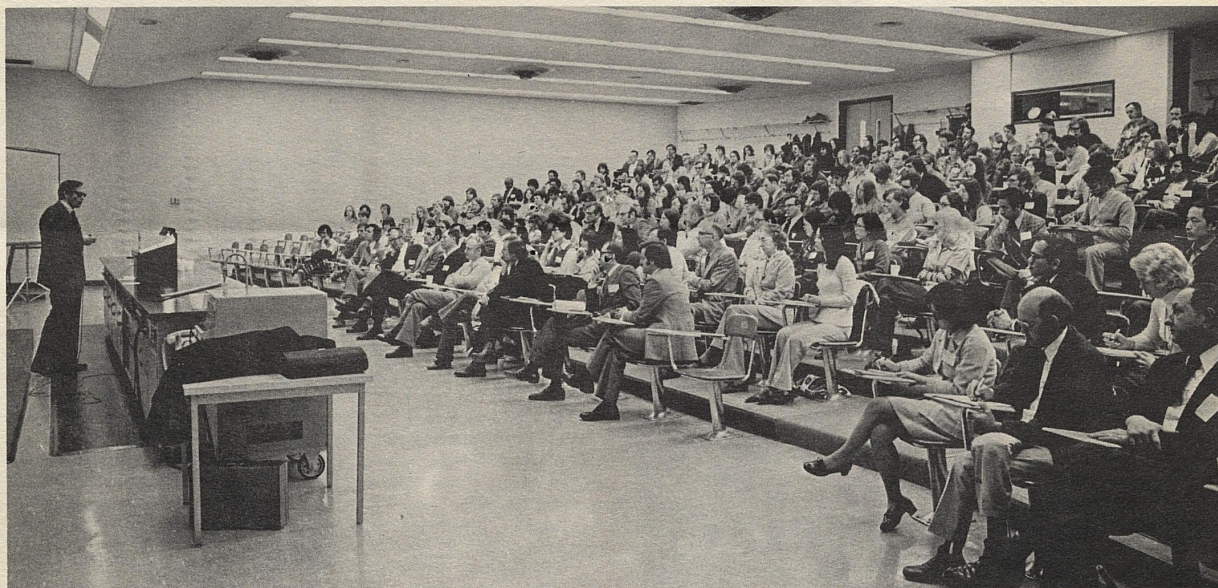


ALUMNI NEWSLETTER

department of chemistry • THE UNIVERSITY OF KENTUCKY

SUMMER 1975



Nobel Laureate Gerald M. Edelman lecturing at the First Annual Anna S. Naff Symposium on Chemistry and Molecular Biology, March 28, 1975.

A NOTE FROM THE CHAIRMAN

It has been several years since we last circulated a newsletter to the alumni of the Department of Chemistry. In this period the department has continued to change and, we hope, to improve. The early 1970's brought many problems to universities throughout the nation. Inflation has eroded real salaries and buying power on our campus, as on most others. In contrast to public universities in many states, however, the student enrollment on both the Lexington campus and at the Community Colleges has continued to rise. The faculty at the Department of Chemistry has also grown to twenty-four. One emeritus faculty member, Dr. E. V. Brown, is also still active in research in the department. There are now approximately 21,000 students on the Lexington campus and an additional 14,000 students at the Community Colleges. The growth is apparently continuing with up to 3,000 new first-year students expected on the Lexington campus for the fall term 1975, as compared to 2,785 new first-year students entering last fall. In addition many students transfer in each year at the junior level from the Community College system. For the academic year starting in the fall of 1975 we expect to have eighty undergraduates and forty-five graduate students enrolled in degree programs in the Department of Chemistry. While our undergraduate major enrollment is satisfactory, our graduate student enrollment is well below the optimum number for a faculty of our size. The decrease in graduate student enrollment in chemistry at the University of Kentucky parallels the national trend, which in turn is the result of the decreased job opportunities for graduates at the Ph.D. level.

Fortunately, it appears the trend has bottomed out, at least for

our department. The incoming class of graduate students for fall, 1975, should number approximately twenty, the largest since 1968. The job opportunity bulletin board is again getting crowded as industrial recovery proceeds, but new academic positions in some areas of chemistry are still scarce. The "handwriting on the wall" suggests even larger numbers of our advanced degree graduates will be entering industrial and government positions than in the past. Special topics courses such as "Industrial Inorganic Chemistry" and the "Physical Chemistry of Macromolecules" are now being offered in our department and have drawn significant student interest.

In summary, the Department of Chemistry has shown a modest growth in faculty and undergraduate major and service student enrollment and, with a stress on efficient procedures, has managed to maintain a basic level of supplies and equipment to support our instructional and research programs. Graduate enrollment is down, but is improving. Unfortunately, little discretionary funding is now available to the Chairman to increase the level of support for audio-visual aids, summer research support to all qualified graduate students and some undergraduates, preparation of newsletters, and many other items of program enrichment. The receipt of the Anna S. Naff Endowment is an example of a gift that has had a major positive impact on our graduate program. The symposium supported by this Endowment will be a yearly feature of our program.

Last year alumni giving to the University provided only \$188 to the Department of Chemistry to be used at the discretion of the Chairman for the various purposes outlined above. This was, of course, in addition to the Naff endowment. If you contribute to the alumni giving program and wish your gift to be used specifically

by the Department of Chemistry, please indicate on your submittal that the funds are for unrestricted use by the Department of Chemistry. Gifts should be directed to: Director of Development, 204 Administration Building. Your consideration is greatly appreciated.

I hope you enjoy browsing through this newsletter and that you will use the form to let us know of any address changes and news of your career. We hope that if you are passing through the Lexington area you will stop in for a visit.

On behalf of our faculty, I send you our warmest regards.

William D. Ehmann
Chairman

REVIEW OF ACADEMIC YEAR 1974-75

Undergraduate education remains a high priority of the department. The Bachelor of Arts in Chemistry has been reinstated starting in the fall of 1975 after having been dropped in 1967. It requires the basic general, organic, analytical and physical chemistry courses, independent work and seminar courses, two semesters of physics and two of calculus, in addition to fifteen credits of science and science-related courses and the University general studies requirements. The B.S. curriculum remains close to its form of recent years. The basic course in analytical chemistry was reinstated in the curriculum several years ago after being optional for some time. Four semesters of seminar are now required. Some flexibility has been added in the selection of advanced courses. Students choose fifteen credits from among the advanced chemistry courses offered in the department and two advanced biochemistry courses. At this time there are 80 chemistry majors associated with the department: 36 freshmen, 14 sophomores, 12 juniors and 18 seniors. Six of the seniors graduated this May. Many of them plan to attend graduate or professional schools.

Katherine M. Steinmetz received the American Institute of Chemists medal honoring her as the outstanding graduating senior in Chemistry. She is also president of the A.C.S. Student Affiliate. Michael Trover, a senior, recently won an Oswald Award for creative research in the physical sciences. Oswald Awards are presented annually by the University to acknowledge creative undergraduate research accomplishments. Mr. Trover's research project, conducted under the direction of Dr. Corio, was entitled "Polar Decomposition of Angular Momentum Operators." The Meredith Award to the outstanding junior went to Thomas M. Barbara. The Merck Index award (outstanding Sophomore) went to Jeffrey H. Frank. A subscription to *Analytical Chemistry* was awarded to James Steele Swan and the Freshman Chemistry Award went to Keith Clark.

In the fall semester there were 3,053 students registered in lower division courses in the department. Of these, 2,148 were enrolled in general chemistry courses and 845 were enrolled in organic chemistry courses (including laboratory courses). The departmental "Resource Room," opened in January, 1974, is being actively used by about 250 undergraduate students per week. Located in the basement of the Chemistry-Physics Building, the room is supervised by the teaching staff, who are available for individual assistance. It is filled with study desks, alternate text books and other references, some popular journals, electronic calculators and audio-visual materials (tapes, film strips, slides, etc.). Old exams and solutions to assigned problems are kept in a file maintained by the faculty. Several faculty members are involved in computer-assisted instruction (CAI). Dr. Sands has assembled several programs on topics of interest to students in General Chemistry. Dr. Kiser has prepared a CAI course on mass spectrometry for advanced students. Dr. Ehmann initiated a CAI program on radio-chemistry counting statistics. An audio-visual program of instruction for use of the T-60 NMR spectrometer was prepared by Dr. S. L. Smith.

Graduate education and research also continue to occupy the energies of the department. An attractive new departmental brochure describing the graduate program was published during the summer of 1974. An active program to encourage qualified students to pursue their graduate education in the department is maintained. Faculty members present lectures on their research programs throughout Kentucky and in neighboring states. For the start of the fall term, 1975, we estimate that there will be about 45-50 graduate students in the department. Approximately 35 of these are usually employed as teaching assistants. Though the formal structure of the graduate program has not changed in any major way in the past five years, it has undergone some minor alteration. The recently instituted core curriculum consisting of five advanced courses (one course in organic, analytical, and inorganic, plus two courses in physical chemistry) is

now required of most entering graduate students. As has been the case for the past ten years the progress of the student is measured by a series of cumulative examinations that are given seven times each year. Students may now examine cumulative examinations in all the specialized areas when they enter the examination room and elect to take any one offered. The student must, however, still pass at least five exams in his major area of Chemistry.

The weekly seminar program has presented a variety of stimulating speakers. Guests from Northwestern, M.I.T., Cornell, Minnesota, Illinois, Indiana, Stanford, Florida and Florida State, Brandeis, North Carolina, I.I.T., Schenley Distillers, Ashland Oil, Bell Laboratories, Oak Ridge, Australia, and Japan have given seminars in the department this year.

The newest addition to the department's instrumental facilities is the CFT-20 Fourier Transform magnetic resonance spectrometer. The computing facilities of the University were enhanced by the recent installation of the IBM 370. Grant support to the department from external agencies totalled about \$300,000 in 1974. Publications by faculty and students numbered sixty-two in 1974. There were seventeen Postdoctoral Associates in the department during 1974-75. Six of them had some teaching duties.

The department committee system for internal government remains substantially as it has been for some time. Undergraduate and graduate students are members of some of the committees. Four new faculty members will join the department in the fall, 1975 (see faculty news section). The financial pinch in which universities find themselves these days has meant for us an increased emphasis on improving the efficiency of our operations, but direct funds for faculty, staff, instruction and research have remained relatively stable. For the past several years, for example, stockroom operation has been monitored by computer, permitting bulk purchases with accompanying volume discounts. Our new Laboratory Manager, Mr. Larry Scheurich (A.B. 1968), joined the department in 1974 after Louis Bauer moved to a similar position at Michigan State University. Other departmental staff members include: seven secretaries; two electronics technicians (for repair, maintenance and design of instruments); a glassblower; two technician-analysts in mass spectrometry, NMR, and computer programming; and five stockroom personnel. Departmental personnel also use the shop and drafting facilities maintained in the Physics Department.

By the end of the 1974-75 academic year, the Department of Chemistry had granted 581 Bachelor's degrees (B.S. and A.B.), 260 M.S. degrees and 132 Ph.D. degrees. A curriculum leading to a B.S. degree in Chemistry was first offered in 1894 and the A.B. program was available from 1949-1969. The A.B. program will be reinstated in the Fall term, 1975, and is likely to be a popular major for students interested in medical careers. The first M.S. degree in chemistry was awarded to Mr. Paul I. Murrill in 1896. The first Ph.D.'s in chemistry were granted to Dr. Michael Golben and Dr. William M. Kelly in 1949.

The number of degree recipients for 1974-75 is: B.S. 6, M.S. 6, Ph.D. 5.

In 1970 Professor Emeritus Lyle R. Dawson prepared a brief history of the early development of the Department of Chemistry. A limited number of copies of this interesting document are available to alumni on request.

THE ANNA S. NAFF SYMPOSIUM

Professors Gerald M. Edelman, Nobel laureate, and Bruce A. Cunningham, both of Rockefeller University were the honored guests of the Department of Chemistry on March 28 as speakers in the first symposium on Chemistry and Molecular Biology. The Symposium will be held annually, the result of a generous gift to the University from the Anna S. Naff Endowment Fund. The late Mrs. Naff (Anna L. Schoulties Naff) received B.S. (1944) and M.S. (1947) degrees from this Department. Her husband, Dr. M. Benton Naff (B.S., '41 and M.S., '46) and her longtime friend Mrs. Betty Barnes Risen (B.S. '46) attended the symposium.

The title of the 1975 symposium was "The Chemistry and Molecular Biology of Immunoglobulins." Dr. Edelman received the 1972 Nobel Prize in Physiology and Medicine for his research in determining the molecular structure of antibodies. The lectures were attended by about 250 faculty members, undergraduate and graduate students and other interested scientists. They came from about twenty departments on this campus, from locations across the state of Kentucky, and from several neighboring states. Following the lectures on Friday morning, a luncheon was held in the Alumni House.

Plans for the 1976 Symposium are now underway. Suggestions for speakers and topics are especially welcome from Chemistry Department alumni. Please send suggestions and comments to Dr. John M. Patterson at the Department of Chemistry, University of Kentucky, Lexington, KY 40506. If you wish to be kept informed of the plans for the symposium, to be held in the Spring, 1976, please also write Dr. Patterson and you will be added to the mailing list for the symposium.

THIS AND THAT ABOUT THE FACULTY

Since it has been some time since the last Alumni Newsletter, we think it appropriate to list our present departmental faculty and some information about each of them.

Our present Chairman is William D. Ehmann, (Ph.D., Carnegie Institute of Technology, 1957); his research interests are in the area of radiochemistry and neutron activation analysis. In recent years, Dr. Ehmann has been involved heavily in the NASA space program, through analyses of returned Apollo lunar samples. With the exception of the Houston Space Center, we probably have as large a (temporary) collection of Apollo samples in the department as anywhere else in the world. Our Assistant Chairman is Ellwood M. Hammaker (Ph.D., Rutgers, 1940), whom many of our graduates may remember. Dr. Hammaker is still heavily involved in teaching freshman and analytical chemistry and in taking care of the details of the day-to-day administrative work of the department. Some of the faculty wonder if the department will survive his retirement, planned for two years from now. The last member of our administrative trio for 1974-75 is Donald E. Sands (Ph.D., Cornell, 1955), who has for several years been Director of General Chemistry. The Director is ultimately responsible for the 2000 students per year who take our various general chemistry courses. In addition, Dr. Sands has been instrumental in setting up a new, very popular Chemistry Resource Room, is actively involved in various aspects of computer-assisted instruction, and still manages to spend some time in the X-Ray Laboratory. In July Dr. Sands will be leaving the General Chemistry office to become Associate Dean for Advanced Programs in the College of Arts and Sciences.

The analytical division faculty members actively engaged in research include Professor Henry H. Bauer (Ph.D., University of Sydney, 1956), whose research is in the various aspects of electrochemistry including electroorganic synthesis and high-energy batteries. Dr. Bauer holds a half-time assignment in the Institute for Mining and Minerals Research on campus. Dr. Bauer has achieved a certain notoriety of late as our local expert on the Loch Ness monster. James E. O'Reilly (Ph.D., Michigan, 1971) is another electrochemist, whose research concentrates on the biological aspects of electro- and analytical chemistry; he did postdoctoral work at the University of Illinois prior to coming to Kentucky. William F. Wagner (Ph.D., Illinois, 1947), one of our former Chairmen, conducts research in the areas of solvent extraction and thermal methods of analysis; he is also very active in the local AAUP Chapter and in the University Credit Union.

The department's inorganic staff includes Robert W. Kiser (Ph.D., Purdue University, 1958), also a former Chairman, whose research interests are primarily in the area of mass spectrometry. Dr. Kiser has become involved in computer-assisted instruction, having recently programmed a major portion of his mass spectrometry course into a computer-compatible format, so that each student can learn at his own pace and on his own time. Kurt Niedenzu (Ph.D., University of Heidelberg, 1956) conducts research involving the synthesis, structure, and reactions of various boron compounds; he has been on sabbatical this year at the Gmelin Institute for Inorganic Chemistry in Frankfurt, Germany. Paul G. Sears (Ph.D., Kentucky, 1953) is continuing his research involving dielectric constant and conductance studies, and nonaqueous solution chemistry. Dr. Sears, a well-known figure on campus, has just been reelected to his third three-year term as the faculty representative on the University Board of Trustees and is a Special Assistant to the President of the University.

Our organic division includes Ellis V. Brown (Ph.D., Iowa State, 1936) who, despite his recent retirement after fifteen years service to the University, is still as active as ever in his research work. Dr. Brown is still one of the first to arrive in the morning and spends many weekends in his laboratory. Robert D. Guthrie's (Ph.D., Rochester, 1963) research work is concerned with mechanistic studies in organic chemistry, mainly in the area of carbanion chemistry and electron-transfer reactions. His National Science Foundation grant has just been renewed for a third consecutive two-year period. As

Chairman of the Graduate Admissions Committee, Dr. Guthrie spends many hours in the recruiting of new graduate students. Douglas G. Naae (Ph.D., Iowa, 1972) has just joined our staff this past September; his research is concerned primarily with organic fluorine chemistry, particularly in the solid state, and with crystal structure determinations. John M. Patterson (Ph.D., Northwestern, 1953), another familiar face to many alumni, is interested in the chemistry of heterocyclic compounds, and high-temperature and photochemical reactions of organic compounds. Stanford L. Smith (Ph.D., Iowa State, 1961) is continuing his work in nuclear magnetic resonance spectroscopy and biochemical structure studies. He has recently completed a one-year term as President of the University Senate Council, and was instrumental in procuring and setting up the University's first carbon-13 Fourier transform NMR spectrometer. Dr. Smith is spending a month in Pakistan this summer as a U.N. Consultant. Walter T. Smith's (Ph.D., Indiana, 1946) research work is concerned primarily with biological organic chemistry—enzyme reactions and the synthesis of medicinals, antimetabolites, and model enzyme systems. His Physiological Chemistry course is as popular as ever among students. Joseph W. Wilson's (Ph.D., Indiana, 1961) research interests are in the mechanisms of photochemical reactions. He will be Chairman of the Lexington Section of the A.C.S. this year.

The department's physical chemistry division contains many new faces. Besides Dr. Sands, our physical chemists include Rodney E. Black (Ph.D., Wisconsin, 1942), who teaches in the freshman chemistry program. Carolyn Pratt Brock (Ph.D., Northwestern, 1972), at U.K. since 1972, does research in both the theoretical and the experimental aspects of x-ray crystallography. Professor Paul L. Corio (Ph.D., Columbia, 1957) has research interests in various aspects of quantum chemistry and magnetic resonance; he is also an accomplished composer of music. Merle D. Pattengill (Ph.D., California, Irvine, 1969) is in his second year at Kentucky, and his research is concerned primarily with the fundamental theory of gas-phase rate processes. Prior to coming to Kentucky, Dr. Pattengill held postdoctoral appointments at the University of Wisconsin and at the University of Toronto. William K. Plucknett (Ph.D., Iowa State, 1942), another faculty member who will be familiar to many alumni, conducts research in various aspects of experimental physical chemistry; he also finds the time to grow several acres of tobacco each year. Dr. Plucknett will be assuming the remainder of Dr. Sands' term as Director of General Chemistry starting in July.

The department will add four new staff members this coming September. Dr. D. Allan Butterfield (Ph.D., Duke, 1974) is a physical chemist whose research interests include electron spin resonance spectroscopy and its applications to biological systems; he is currently completing a postdoctoral appointment at the Duke University School of Medicine. Previously, Dr. Butterfield spent two years in Africa. Our second new faculty member is Dr. Steven W. Yates (Ph.D., Purdue, 1973), whose research involves radionuclear chemistry; most recently, he has held a postdoctoral appointment at the Argonne National Laboratories in Chicago. August will also see the arrival of Dr. Thomas G. Attig (Ph.D., Ohio State, 1973) whose research interests are in the area of organo-metallic chemistry; presently he has a postdoctoral appointment at the University of Western Ontario. Finally, we are pleased to announce that Dr. Audrey L. Companion, formerly of Illinois Institute of Technology, will join our faculty as Associate Professor. Dr. Companion has published extensively on the topic of diatomics-in-molecules theory and is very active in the field of chemical education.

Two emeritus faculty have changed their addresses recently. Dr. Lyle Dawson recently sold his house on Barberry Lane and moved to 3420 Milam Lane in Merrick Place, Lexington, Kentucky 40502. Dr. Jacob Meadow has moved from Lexington to 347 Robin Road, Waverly, Ohio 45690.

RECENT NEWS FROM AND ABOUT ALUMNI

News about Department of Chemistry alumni falls into our hands from several sources—from the alumni themselves, from their friends currently on campus and from friends of friends. For the most part all we have are addresses. For this issue of the Newsletter we are including a short list of news items that were volunteered by current faculty and students and information derived from recent alumni correspondence. We would especially like more information of this kind. We urge you to return the enclosed sheet with information about yourself and your friends for inclusion in future Newsletters. If sufficient interest is shown we would hope to prepare Newsletters each year in the future:

Henry Phillip Orem (B.S., '32, M.S., '34) has just retired after twenty-five years in the Chemical Research Department of Coal, Iron and Chemicals Division of United States Pipe and Foundry Company. Prior to that, he worked for American Cyanamide for thirteen years. During his industrial career, Mr. Orem has been the holder or co-holder of eighteen U.S. and seven Canadian patents. As recently as last August he made application for two additional U.S. patents. Throughout these years, Mr. Orem has been active in the American Chemical Society, The American Institute of Chemists, and Sigma Xi.

Richard McConnell (B.S., '48) has several excuses to visit Lexington frequently. He is on the Board of Directors of the U.K. Alumni Association, his daughter is a student in the College of Nursing here and his wife Carolyn (B.S., '48) is a native of Lexington. Dr. McConnell is employed at the Tennessee Eastman Co., in Kingsport, Tennessee. John F. Bauer, currently a graduate student under the direction of Dr. W. T. Smith and the holder of a Tennessee Eastman Fellowship, recently visited Kingsport as the guest of the Company and was the dinner guest of Dr. and Mrs. McConnell.

Achmad Amiruddin (Ph.D., '61) is now President of Hasanuddin University, Celebes, Indonesia.

F. Marshall van Meter (B.S., '65) is completing his final year in the U.K. Medical School. As a captain in the Air Force he will begin his residency at Wilfred Hall at Lackland AFB in Texas. Marshall spent two years at Edwards AFB in California at the Rockefeller Lab after completing his Ph.D. in inorganic chemistry at Georgia Institute of Technology.

Philip A. Baedecker (Ph.D., '66) recently accepted a position as Research Chemist with the U.S. Geological Survey, Reston, Va.

James M. Huey (B.S., '66) completed the Ph.D. at Carnegie Mellon University and is now doing research at the L.S.U. Medical Center.

James L. Setser (M.S., '66) manager, Measurement Services Division, Environment/One Corporation, Schenectady, NY, has been elected the first president of the Association of Environmental Laboratories. A feature article on Mr. Setser appeared in the October, 1974, issue of *Environmental Science and Technology*. Presently residing in Schenectady, Mr. Setser was born and raised in Van Lear, Kentucky, and received his B.S. degree from Morehead State College.

James T. Tanner (Ph.D., '66) is a Research Chemist at the U.S. Food and Drug Administration in Washington, D.C.

James R. Vogt (Ph.D., '66) was recently named Associate Director of the Environmental Trace Substances Research Center at the University of Missouri.

Lewis E. Nunnelley (B.S., '68) completed the Ph.D. at Oregon State University in 1974 and is now at the Lawrence Radiation Laboratory, Livermore, California.

William Kipp (Ph.D., '69) was a recent visitor in the Department of Chemistry. He is Manager of Quality Assurance in Central Analytical Services of Schenley Distillers, Inc., of Cincinnati.

David M. McKown (Ph.D., '69) is senior radiochemist at the

Research Reactor Facility of the University of Missouri.

Teofila Rebagay (Ph.D., '69) is a chemist with the Department of Pharmacy at the University of Kentucky.

Kurt L. Huhtanen (Ph.D., '70) has just begun a new job as Chief Chemist in radiology in the Department of Human Resources for the Commonwealth of Kentucky. After his return from Peace Corps service in the South Pacific, Kurt worked as a postdoctoral research associate in the Toxicology Laboratory at U.K. Their second son was born to Kurt and Charlotte in March, 1975.

Donald L. Showalter (Ph.D., '70) is on the faculty of Iowa Western Community College, Clarinda, Iowa.

David E. Gillum (Ph.D., '71) is now on the faculty of Ashland Community College, Ashland, Kentucky.

David L. Greene (Ph.D., '71) is a faculty member at Rhode Island College in Providence.

Patricia M. Santoliquido (Ph.D., '71) recently accepted a position with Trace Elements, Inc., Park Ridge, Illinois.

Ainslie T. Young (Ph.D., '71) has recently taken a position with Mead Chemical Company in Chillicothe, Ohio. After leaving Lexington he spent one year as a postdoctoral fellow with Professor Andrew Streitweiser at the University of California-Berkeley, and two years with Professor William A. Pryor at Louisiana State University in Baton Rouge.

Gary Weisman (B.S., '71) has just received the Ph.D. in chemistry from the University of Wisconsin in Madison. He has taken a postdoctoral position under Professor D. J. Cram at the University of California-Los Angeles and plans a career in college teaching.

Robert D. Fraas (Ph.D., '72) now a faculty member at Eastern Kentucky will be a guest speaker on "Forensic Sciences" at the 27th Southeast-31st Southwest Combined Regional A.C.S. Meeting in Memphis, Tennessee, in October, 1975.

Russell Isbrandt (Ph.D., '72) has worked for Polacoat of Cincinnati. When Polacoat recently sold out to Minnesota Mining and Manufacturing Co., he moved to Minneapolis where he is involved in research on liquid crystals.

James A. Kuhlenschmidt (M.S., '72) was recently promoted to International Manufacturing Liaison Manager with Ames Manufacturing Co. (a division of Miles Laboratories) in Elkhart, Indiana.

Michael D. Miller (Ph.D., '74) joined the faculty of Glassboro State College, Glassboro, New Jersey, in the fall, 1974.

Samuel C. Hsu (Ph.D., '74) has completed a postdoctoral appointment with Professor Malcolm Dole at Baylor University and is currently a postdoctoral fellow with Professors Beynon and Cook at Purdue University.

Recent graduates at Abbot Laboratories in Waukegan, Illinois, include *Andrew Plasz* (Ph.D., '70), *John Motlow* (Ph.D., '74) and *Richard Granneman* (Ph.D., '73).

Recent graduates at the Dow Chemical Company in Midland, Michigan, include *Gilbert Downs* (B.S., '74), *Paul Cranley* (M.S., '74) and *Martin Langhorst* (M.S., '73).

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