

Cornell Chemistry

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Two New Faculty Members Join the Department

Melissa A. Hines and **H. Floyd Davis**, both physical chemists, will join the faculty as assistant professors at the beginning of the 1994-95 academic year. A profile of Floyd Davis will appear in the next newsletter.

Melissa Hines pursued her undergraduate degree in chemistry at the Massachusetts Institute of Technology and received her PhD in physical chemistry from Stanford University in January 1992. Her research at Stanford was guided by Professor Richard N. Zare. She has since been a postdoctoral fellow at AT&T Bell Laboratories, where she was part of a team looking at the microscopic mechanisms underlying the aqueous fluorine etching of silicon surfaces.

Hines exhibits a strong interest in chemical education and was named a Stanford Centennial Teaching Assistant for her accomplishments there. "The key to successful teaching is clearly preparation," she writes, "but this is not the only requirement." She feels it is much easier to teach what is relevant, using familiar compounds and discussing current topics in problem sets. One area that she would like to get involved in is the use of computers in chemical education, where sophisticated calculations can be performed quickly on desktop machines. "A lot of people get turned off by chemistry, especially physical chemistry, *simply because they get lost in the math.*"

Hines's research at Cornell will focus on molecular reaction dynamics at surfaces, with particular emphasis on reactions at semiconductor surfaces. She describes her research plan in the following paragraphs.

"The goal of surface reaction dynamics is to understand the microscopic path a molecule follows when reacting with a surface. This "reaction" can be anything from the simple sticking of a diatomic on a surface to the dissociation of a molecule or even removal of the surface by an etchant. To investigate these reactions, we might ask, for example, how reactivity changes with orientation of the molecules or site on the surface or energy of the reactants.



Assistant Professor Melissa A. Hines

"The challenge in asking such microscopic questions is finding techniques that answer them. We will take a multifaceted approach to this problem. One of the most useful tools is a simple molecular beam—an intense, highly directional, monoenergetic source of molecules. This beam can be used as either a source of reactants of tunable translational and vibrational energy or as a probe of surface structure using low-energy helium scattering.

"We can use a variety of techniques to study the molecules while they are on the surface, such as low-energy electron diffraction (LEED), Auger electron spectroscopy, scanning tunneling microscopy (STM), and infrared absorption. After they leave the

Melissa Hines (continued)

surface, reaction products can be analyzed using a quadrupole mass spectrometer.

"At present, I am particularly interested in reactions on semiconductor surfaces. Because of the localized nature of semiconductor bonds, geometrical constraints (such as steric hindrance and strain relaxation) can have profound effects on the reaction path.

"One striking example of this is in the aqueous fluorine etching of silicon. Under somewhat basic conditions, the flat, close-packed(111) plane is etched much more slowly than other crystallographic planes. Because of this, a simple, wet chemical treatment can be used to produce surfaces that are much flatter and more defect-free than those produced using state-of-the-art surface techniques.

"Thus simple wet chemistry outperforms high-temperature vacuum annealing. Can chemistry provide other shortcuts in semiconductor processing?"

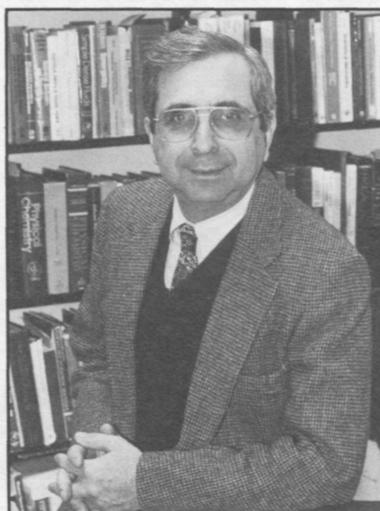
Faculty News

Professor Simon H. Bauer received a grant from the NSF for his project "A Practical Upgrading Process for Methane."

Professor Frank DiSalvo delivered the Earl L. Muetterties Memorial Lectures at the University of California, Berkeley, in February. Muetterties was a member of the Cornell chemistry faculty from 1973 to 1978. DiSalvo's topics were "Challenges in Solid State Chemistry," and "The Chemistry of Solid State Nitrides." On February 28 and March 1 he delivered two lectures as the Watt Centennial Lecturer at the University of Texas at Austin.

Professor Jean M.J. Fréchet, Hiroshi Ito of IBM, and C. Grant Willson, from the University of Texas, Austin, shared a \$2,000 Award for Cooperative Research in Polymer Science & Engineering, established in 1992 by the American Chemical Society's Division of Polymeric Materials: Science & Engineering. The awardees are being recognized for breakthrough collaborative work on development of chemically amplified positive working resist systems used for the commercial production of computer chips.

Professor Jack H. Freed has been elected a fellow of the American Academy of Arts and Sciences. Founded in 1780, the Academy is a learned society with a dual function: to honor achievement in science, scholarship, the arts, and public affairs and to conduct a varied program of studies that reflects the interests of its members and is responsive to the needs and problems of society and of the



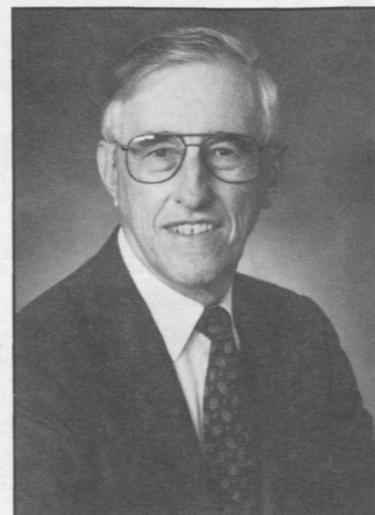
Jack H. Freed

intellectual community. Its membership totals about 3,300 fellows and 600 foreign honorary members. Professor Freed has also been selected to receive the 1993/1994 Gold Medal of the International EPR (ESR) Society. The presentation and symposium in his honor will take place at the Denver meeting of the International EPR Society in July 1994.

Cornell's Board of Trustees has named former chemistry professor **Gordon G. Hammes** professor emeritus. Hammes, who left Cornell in 1990, is now vice chancellor for academic affairs at Duke University Medical Center.

Professors Paul Houston and Terrill A. Cool (Physics) received a grant from the DOE/Idaho Falls for their work on "A Tunable Vacuum Ultraviolet Laser for Combustion Studies."

Professor Jerrold Meinwald will lead a team studying insects in Costa Rica as a potential source of new medicinal agents, in cooperation with the National Biodiversity Institute of Costa Rica and Bristol-Myers Squibb. This International Cooperative Biodiversity Group program, funded by a consortium made up of the NIH, NSF, and the Agency for International Development, aims at conserving biodiversity and promoting environmentally sound economic development through discovery of drugs from natural products. There are five teams that will share \$2.5 million per year for the next five years for pursuing such "chemical prospecting" programs in developing countries. Professor Meinwald has just presented some of his most recent research results in the *Jean Day Memorial Lecture* at Rutgers University in a talk entitled "Learning Chemistry from Insects."



Gordon G. Hammes

Organic Synthesis in Water: A Solution to the Problem of Toxic Waste?

by Professor David Collum

A recent report of the Environmental Protection Agency (EPA) estimates that industry produces upwards of 600 million tons of hazardous waste each year and spends more than \$70 billion complying with environmental protection statutes. In 1984, Congress amended the 1976 Resource Conservation Recovery Act, establishing hazardous waste reduction as a national priority. It is the explicit stance of the EPA that reduction of waste *at the source* is the best demonstrated available technology for minimizing the environmental, legal, and financial consequences of hazardous waste. As regulations become more stringent, the economic pressures on the pharmaceutical and related chemical industries are likely to escalate dramatically.

Our group has received funding from Pfizer, Inc., and Johnson and Johnson Co. to study ways in which organic reactions, isolations, and purifications can be done in water rather than in solvent solutions. There already exist a number of potentially useful reactions that can be carried out in the presence of water. However, a comprehensive effort to completely exclude organic solvents is absent. The problem is that water compatibility requires that the substrates and reagents dissolve in water, a tendency often not observed in organic compounds, as well as resist destruction by the water. The exciting challenge we have accepted is to import most routine organic reactions to aqueous media.

Our approach is simple: We control water solubility by modifying the substrates and reagents so as to impart solubility properties that are sensitive to pH. As illustrated in Scheme I, a pendant acidic group would afford water solubility at high pH. The crude product would be isolated by a simple precipitation with mineral acid.

Recrystallization as either the free acid or a judiciously chosen salt is likely to be achievable in water or related alcoholic solvents. The overall strategy could dramatically reduce—possibly even eliminate—reliance on the most hazardous organic solvents. In turn, pollution control is reduced to scrubbing of aqueous effluents using relatively straightforward carbon adsorption, wet air oxidation, and precipitation technologies. The savings in waste management would be amplified by the reduced costs of hazardous solvent storage at plant sites.

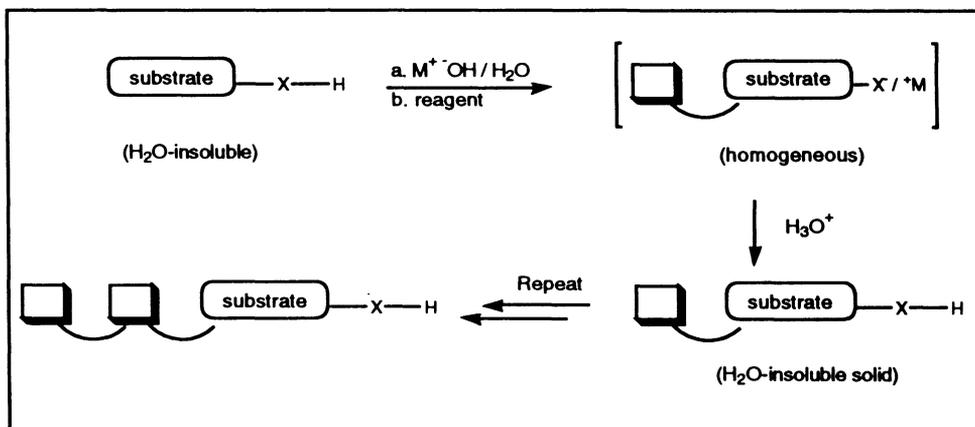
We're attempting to retool organic synthesis into a *hydrophilic* discipline by accumulating, adapting, and creating aqueous equivalents to the reactions currently carried out in organic media. While the concept is simple, the scope of the problem is monumental. We've chosen to focus on the development of synthesis methods and strategies rather than on the synthesis of a specific target molecule.

One class of reactions that holds special promise includes those catalyzed by transition metals. Inorganic chemists have made significant strides toward develop-

ing water-soluble catalysts. Nonetheless, applications have remained almost entirely within the realm of singlestep syntheses of bulk chemical used as feedstocks for the chemical industry rather than for multistep syntheses of specialty chemicals characteristically required in the pharmaceutical industry.

Other aspects of our work will be truly exploratory. Once we've established a library of water-soluble, multifunctional substrates, we can screen a wide range of commonly used reactions for aqueous compatibility at minimal additional labor costs.

As the interfaces within the physical and biological sciences become increasingly blurry, developments in homogeneous aqueous synthesis are likely to impact on *all* water-dependent chemical methodologies. One must not forget that it was before the invention of chemistry as an academic discipline that organic chemistry was carried out exclusively in biological settings in a variety of aqueous media.



Scheme I

Alumni News

Thank you to those who responded to the survey. We received many comments about the *Newsletter* and, as you can see, lots of alumni news.

1921–1930

Errett Callahan, BChem '27, who retired in 1971 as vice president of the Allen-Morrison division of DuPont in Lynchburg, Virginia, writes, "Faculty advisor in Chemistry was 'Dusty' Rhodes—the best of industrial chem pros—a good teacher who helped me decide on going with the DuPont Company. In those days we had several job offers. \$1800 a year was the going rate and we could live off that very well until we got two 10% cuts in the depression years. My best regards to Joe Ayers and Guido Henry as I do believe they are still kicking."

T.G. Rochow, BChem '29, PhD '34, associate professor emeritus of North Carolina State University, School of Textiles, writes, "Based on lessons from Cornell's Professor S.H. Gage, E.M. Chamot, C.W. Mason, and G.G. Cocks, the book on *An Introduction to Microscopy by Means of Light, Electrons, X-rays, or Ultrasound* went through three printings. It was authored by Ted Rochow and brother Eugene G. Rochow, Cornell BChem '31 and PhD '35. A second edition is scheduled for 1994."

1931–1940

Kelvin Ferber, BChem '32, writes, "In 1975, retired from Allied-Signal after 43 years in various positions. Followed by 15 years as consultant in Occupational Health, retired again in 1990." He now resides in Buffalo, New York.

Francis B. Rosevear, AB '33, AM '35, PhD '37, retired from Procter and Gamble in 1975, writes, "Sorry to have missed getting to Baker (and Olin) during the reunion in June, but involvement with the entertainment for the Class of '33 kept my nose to the (enjoyable) grindstone. (Glad to see the appreciation of Clyde Mason on p. 5 of the 12/93 issue.)"

Joseph Brant, PhD '35, who retired from Eastman Kodak, writes that he has happily relocated to Tyron Estates, a new retirement community in Columbus, North Carolina.

Jack H. Rines, BChem '35, writes that the recent decline in the phosphate industry in central Florida has severely curtailed his consulting business. He still does some consulting in the rubber field (tank linings and evaporator linings), which is his lesser field of expertise.

Ruth Rosevear, AB '36, is a licensed dietitian. She writes, "My chemistry background has been invaluable in my career as nutrition consultant—Even when I forgot details, I knew where to find a resource. The Cornell name was helpful, too."

Mary Schuster Jaffe, AB '37, who retired from GE Lighting in 1987, writes, "Retired chemists rarely have many chances to use their chemical skills. I volunteer in the computerized accounting office of a training center for mentally handicapped adults. One of their products is packaged liquid soap, so occasionally I can advise them with their rheological or spoilage problems."

Lincoln Diuguid, MS '39, PhD '45, president and owner of Du-Good Chem Lab and Mfrs., writes, "I presented a paper Nov. 11, 1993, at Midwest ACS meeting at University of Missouri (Columbia) *Potential Anticancer Derivatives of Santonic Acid, Benzothiazole, Thiazoles and Pyrazinoindeole*. Picture and resumé posted in St. Louis Science Center—Inventor and Scientist (Afro-American)."

George Polzer, Jr., BChem '40, MA '42, who retired from Witco Corporation, writes, "Still on executive committee of the Chemical Industry Council of New Jersey. This industry association has budget of approx. \$500,000 annually, supported by 105–110 chemical companies in the state."

1941–1950

Rudolph D. Deanin, AB '41, professor of plastics and graduate coordinator at the University of Massachusetts, Lowell writes, "I have been at University of Massachusetts Lowell for 26 years. I founded and direct the Plastics Engineering graduate program, which now numbers 450 students, producing 40 MS and 20 PhD and DEng per year."

Harold Furber, MS '41, writes that he retired in 1982, following his entire career with DuPont, largely in manufacturing. His exposure to fluorine chemistry was not renewed for many years following his Cornell graduate work with Dr. Miller.

W. Glenn Mayes, MS '41, PhD '43, is retired from Firestone Tire and Rubber Company and lives in Akron, Ohio. He notes that "Dr. Walter C. McCrone was my lab partner and 'Best Man' at my wedding on July 13, 1940. My wife and I have been married 53+ years." He also wrote a short remembrance of Peter Debye: "I arrived on the Cornell campus for graduate study in January of 1940 at the same time that Dr. Peter Debye came to Ithaca from Europe. To help satisfy my physical chemistry minor I attempted to register for a course entitled 'Molecular Structure'; but the lady who was handling my registration process told me that this course was being canceled because Dr. Debye was going to be giving a Baker Non-Resident Lecture course under the same title. So, this registrar lady suggested that I take Dr. Debye's lecture series as a credit course. I, being extremely naive, agreed to this arrangement."

"The large lecture hall was filled to capacity; but I soon realized that I was the only member of the audience that was madly taking notes. I began to make inquiry as to who else was taking these lectures for credit. I soon found out that no one else in the vast lecture hall was following me on the credit route; in fact, every one who heard of my plight, looked at me with an aghast expression."

"When I realized my sorrowful state, I went to Dr. Debye and asked his permit to drop the lectures as a credit course. He was very opposed to my request, because having a credit student listening to his lectures was going to enable him to measure how well his teachings were being absorbed. I asked what was going to be the nature of the final examination, to which he replied that after the lectures were over we would sit down and talk about what I got out of them. This to me meant 'Oral Exam.' So, after the end of the course, we sat in his office for several hours and talked. At the end of our talk, Dr. Debye asked how universities grade in U.S.A. I remember telling him about 'A' and 'B' but I can't remember mentioning the lower grades. He suggested that he give me a B+, which I gladly accepted. When word got around the Department of my grade in Dr. Debye's lectures my status rose to the equivalency of sainthood in the Catholic Church. Dr. Debye kept in touch with me essentially until he departed from this earth; he was a great guy."

Charles P. Argana, AB '44, retired from DuPont in 1986, writes, "After 20 years in Southern California, made a move to Austin, Texas, in mid-1993. . . Reason to be nearer to grandchildren!"

We were pleased to receive new year greetings from Dr. **Pradisth Cheosakul**, PhD '44, who celebrated his 80th birthday last July surrounded by friends and family. Dr. Cheosakul is still very actively involved in the affairs of his company, THASCO, Thailand's leading producer of caustic soda. He is still pressed into many

civic duties by the government of Thailand, including his membership on the Committee on Selection of Meritorious Persons Deserving Bestowal of the Dusdhi Mala Medal by His Majesty the King. Dr. Cheosakul himself was awarded the medal in 1983 as a reward for his continuing meritorious service to Thailand. Mrs. Ubolsri Cheosakul, the letter reports, still visits the Security Exchange of Thailand, and among her other civic responsibilities is Adviser to the Committee on Science for Youths. Their son, Adith, is now on the staff of the SASIN Graduate Institute of Business Administration at Chulalongkorn University.

Members of the American Chemical Society know **Moses (Mike) Passer**, PhD '48, was a member of the ACS staff from 1964 until he retired, as Director of the ACS staff Education Division, in 1987. Mike marked his first year as head of the educational activities department of the Membership Division at ACS by initiating the society's continuing education program. In 1965 he instituted three short courses at a national meeting; today the society offers over 250 courses annually. As a result of his leadership in developing programs to serve all levels of chemical education, the educational activities department grew to become the Education Division.

Mike's contributions to chemical education in the United States were recognized during a morning-long symposium in his honor at last fall's ACS meeting in Chicago. As you might expect, Mike hasn't stopped supporting chemical

education through the ACS. He and his wife, Dorothy, have established a perpetual endowment to finance continuing education for chemistry and chemical technology teachers at undergraduate institutions.

Anthony Tappin, AB '49, who retired as corporate vice president of marketing at FMC Corporation and lives in Oak Brook, Illinois, writes that he is currently co-chair of the Chicago area Cornell Campaign.

Thomas B. Owen, PhD '50, writes that he has been active in the affairs of the Cosmos Club in Washington and is also involved in volunteer work at his local library. He resides in Bethesda, Maryland.

1951-1960

William L. Berry, AB '51, resides in Bridgewater, New Jersey, and writes that he is enjoying retirement after 33 years in chemical management at American Cyanamid (he was president of the Venture Chemicals Division).

The new year brought a letter of reminiscence from **Ellis R. Glazier**, AB '51. Our notice in the May 1993 newsletter of PhD '52 Keith Shillington's death prompted Dr. Glazier to send us several anecdotes from his days as a lab assistant to Shillington, including the following:

"I got started helping grad students while I was taking Quantitative Analysis during the summer session in 1949 between my sophomore and junior years. I was spending a lot of time at Baker Lab and got to know **Phil Adams** PhD '50. I did not work with him long since about that time his lab got burned out. We were trying to put out a fire fed by 12 liters of burning toluene spread around the floor with a full tank of high-pressure nitrogen standing in the center of the flames. The hall outside the lab appeared to have every fire extinguisher in Baker Lab lying there empty, but we could not get enough going on the fire at once to put it out.

Fortunately the fire dept. arrived outside the window and quickly knocked the flames down. . . I did work for a time with **Ed Whiting** PhD '50. He was making large carbon ring compounds, C-15 or so,



W.T. Miller examines the 1990 reunion hat of Arthur E. Newkirk

Alumni News continued

on a project for Prof. Blomquist. . .the work was boring for a grad student but not for a junior who had just the past year taken organic chem. Keith (Shillington) shared the lab with Ed and. . .coopted me to be his dogs-body. Before summer I was working full time for Keith and got to be so trusted that. . .I was given the responsibility of making tea in a five-gallon crock every afternoon before we went swimming in the gorge below the suspension bridge.

"During the summer session, Baker Lab was not very populated. There were few students and generally only the grad students and the staff were there. The lab in the afternoon was very quiet. All one could really hear was the pockity pockity of many vacuum pumps running. . ."

Elmer Schallenberg, AB '51, writes that since retirement in 1991 from Texaco, Inc., where he was managing director at the Texaco Services Deutschland in Hamburg, Germany, he and his wife have been dividing their time in maintaining homes in Fishkill, New York, and Dietikon-Zürich, Switzerland.

William Courchene, PhD '52, writes that he retired in 1988 after 36+ years in research and development at Procter and Gamble in Cincinnati, Ohio.

Bernard H. Eckstein, PhD '53, writes, "I retired from Union Carbide's Parma Technical Center in 1986, worked as a consultant to 1990. Now we spend much of our time traveling." He resides in North Royalton, Ohio.

Elliot Bergman, PhD '55, writes that he retired from Griffin Corp., Valdosta, Georgia, in late 1992. His wife Eleanor is a learning disabilities specialist. He has started consulting in chemistry and agricultural chemicals, and does patent work, with Griffin Corp. as his first client. He has three sons, and two grandchildren.

Karl Lockwood, PhD '55, retired from teaching in 1993 and writes that he is enjoying retirement more than he thought he would.

Alden Josey, PhD '57, writes, "I have a practice of Jungian psychoanalysis in Wilmington. I am an occasional visiting lecturer at the Jung Institut (Zurich) and am presently assistant professor of mental health sciences (Adjunct) at Hahnemann University, Philadelphia. I still read the journals to see what chemists consider interesting and worthy problems these days."

Rolf Barth, MD, AB '59, is professor of pathology at Ohio State University. He writes, "One of our major interests is the development of boron-containing macromolecules that can be used to target brain tumors for Boron Neutron Capture Therapy. Our present interest focuses on bispecific antibodies and epidermal growth factor that have been linked to starburst dendrimers. This is described in a paper that will appear in *Bioconjugate Chemistry*, January-February 1994."

1961-1970

Another alumnus whose chemistry training is only part of the experience and knowledge he brings to his job is **Robert Filner**, AB '63, PhD '73. Filner was an Associate Professor of History at San Diego State University, then he was elected to the United States Congress as a representative from California. Filner writes that he is "one of only a handful of chemists ever elected to Congress!" Can anybody name the others?

David M. Bridgeman, AB '65, who is senior account specialist at Dow Chemical in Atlanta, Georgia, writes that he has been selling vinyl ester resins for 15 years, the last 6 of which have been with Dow, covering all or part of 20 states in North-east/Southeast United States. He is looking forward to returning to the West Coast if an opportunity to do so develops.

Victor Hruby, PhD '65, Regents Professor of Chemistry at the University of Arizona, received an Alan E. Pierce Award in Peptide Chemistry for 1993.

Donald B. Boyd, a postdoctoral associate in 1967, is a senior research scientist at Eli Lilly and Company in Indianapolis, Indiana. He writes, "Volume 5 of *Reviews in Computational Chemistry* has been published by VCH, New York. It has chapters on history, post-Hartree-Fock methods, population analysis, Brownian dynamics, lipid simulations, distance geometry, and computer-aided drug design."

Maitreyi Chandra, MS '67, PhD '70, has been professor of chemistry at National Council for Educational Research and Training (N.C.E.R.T.) in New Delhi, India, since 1989.

Edward S. Yeung, AB '68, distinguished professor in sciences and humanities at Iowa State University, has received the ACS Award in Analytical Chemistry. Yeung and his colleagues Barry L. Hogan and Thomas T. Lee developed a procedure for studying the contents of a single human red blood cell. This technique is considered a milestone in ultramicro techniques, surpassing all previous attempts at characterizing small samples.

Accompanying his society dues was a letter from **Steven J. Lee** AB '69, who says ". . .there are many opportunities to be seized, other than industrial and/or academic research and teaching, by people with good chemical backgrounds." Lee received his PhD in 1973 at the University of Rochester and was an assistant professor at Hamilton College for two years; a research associate at Columbia University for four years; and then an assistant professor at Fordham University. While at Fordham, he attended law school at night, graduating in 1984. Since 1986 he has been with an intellectual property law firm in New York City, Kenyon & Kenyon, specializing in patent litigation, especially chemical, biochemical, and biotechnological patents. Last year he became a partner in the firm.

Lee comments, "While patent law has always been practiced by people with technical backgrounds, (it's a requirement, for example, for practice before the Patent Office in Washington), more and more chemists (and other scientists) with graduate degrees are working in this area. In our firm, for example, we have seven lawyer/PhDs, including chemists, biotechnologists, biologists, and physicists. Although I have no laboratory facilities, I still sometimes do a chemical experiment. One of my last cases found me, with my button-down shirt unbuttoned and sleeves rolled up, measuring the rheology of gelatinous materials."



Mina Dulcan, MD, AB '70, writes, "September 1993 appointed Osterman Professor of Child Psychiatry, Head of Child and Adolescent Psychiatry Children's Memorial Hospital, Northwestern Memorial Hospital and Northwestern University Medical School."

Andrew Kaldor, PhD '70, writes, "I have recently moved from Exxon's Corporate Research lab in New Jersey to Exxon Research and Development Laboratory in Baton Rouge, moved from directing long-range, basic research to exploratory and development programs in fuels process. Sandy, my wife, and Tamara, my daughter, are adjusting to life in the South. Our son, Eric, graduated from Cornell in June and married another Cornell graduate a week later. He and his bride are now in graduate school in Irvine, California."

1971-1980

Evelyn Erenrich, PhD '71, writes, "I teach the general chemistry course for science majors at Rutgers University. My husband Eric (PhD '71) is an International Marketing Manager at Allied-Signal. Our daughter, Amy, is a freshman at Harvard and our son, Jordan, is in the eighth grade. As a member of the CAAAN (Cornell Alumni Admissions Ambassador Network), I have been enjoying interviewing prospective undergraduates for admission to Cornell."

Paul Goldberg, MD, AB '71, who is President of Gastrointestinal Associates in Daytona Beach, Florida, writes that he

Were you here in 1981?

was elected to fellowship in the American College of Physicians in April 1993 (FACP). He and his wife, Mary Alice, have three daughters.

Robert T.V. Kung, PhD '71, vice president for research and development at Abiomed, is the principal investigator for a team of scientists at Abiomed working on an implantable, total artificial heart (TAH). The research is funded by NIH's National Heart, Lung, and Blood Institute (NHLBI), and calls for production of a mechanical heart that will function without failure for at least five years. Abiomed's electrohydraulic device is powered by an external battery pack that has internal backup batteries.

Arnold Friedman, MD, AB '72, writes that he is the newly appointed chairman of the Department of Radiologic Sciences at the Medical College of Pennsylvania.

Ruth E. Stark, AB '72, professor at CUNY College of Staten Island, writes that the department is just completing its move to a new campus on Staten Island. Although she'll miss her view of New York Harbor, she is looking forward to bigger and better facilities for her research in NMR and teaching physical chemistry.

Laurie J. Kovalenko, AB '78, an assistant professor of physics at Eckerd College in St. Petersburg, Florida, received a 1993 ACS PRF grant. Congratulations!

Susan Boettger, PhD '79, senior research scientist at Bristol-Myers Squibb Chemical Development Division in Syracuse, New York, writes that she spent part of 1992-93 working on semi-synthesis of taxol, a newly approved anticancer drug.

1981-1990

William A. Levinson, PE, MS '82, staff engineer at Harris Semiconductor in Mountaintop, Pennsylvania, writes that he is a biographee in 1992-1993 *Who's Who in Science and Engineering*. Technical journal paper: Levinson, W., Arnold, A., DeHodgins, O. "Spin Coating Behavior of Polyimide Precursor Solutions," *Polymer Engineering and Science*, mid-August 1993, Vol 33, No 15.

An article in the January 12, 1994, *New York Times* described a program presented by **Cynthia Burrows, PhD '82** and other female professors at the State University of New York at Stony Brook. Three hundred Long Island junior and senior high school girls were invited to Stony Brook as part of the first annual Symposium for Girls Exploring Mathematics and Science. Burrows, a chemistry professor, and her colleagues talked about balancing career and family life, showed slides, answered questions, guided hands-on learning experiences and escorted the students through laboratories in an effort to encourage them to take more math and science courses, and to consider the sciences as a realistic career option.

Alumni News continued

Erik N. Farley, PhD '84, associate editor, Patent Services at Chemical Abstracts Service (CAS) in Columbus, Ohio, writes that he has been helping to plan many exciting changes coming in CAS products. He also writes that he has become a rock climber in his spare time and plans to visit Nevada and California in the spring. He became a father in May, 1992, and his son Alexander now runs around and says "no" a lot!

David L. Cooper, MD, AB '85 is a research associate at Rockefeller University and writes that he is taking two years out of a busy neurosurgery residency training program in Syracuse, New York, to research the involvement of inhibitory cytokines in normal brain development. David was recently engaged to Debra SaDock, a New York attorney.

Robert J. Hamers, PhD '86, associate professor at the University of Wisconsin, Madison, has received the Peter Mark Memorial Award of the University of Wisconsin, Madison, for his outstanding contributions to the development of scanning tunneling microscopy and spectroscopy as tools for quantitative analysis of the electronic properties of surfaces.

Karl Albert Weber, PhD '85, associate editor, Authority Database Operation of the Chemical Abstracts Service in Columbus, Ohio, writes that he is happily married to Amy Weber and they have two fine children: Eric, 5 and Joyce, 2.5

Ronald H. Wharton, AB '85, who is an instructor at Montefiore Medical Center, Bronx, New York, writes that he is leading a very active chamber music life when not at work; last year he performed trios by Beethoven and Mendelssohn, and this year he is performing a Brahms piano quartet in New York City.

Deborah Kreiss, BA '86, writes, "after completing my BA from Cornell, I traveled across the country and spent 1.5 years in Oklahoma taking classes in the

graduate chem department at Oklahoma State University. I then entered the Neuroscience program at the University of Pennsylvania. I completed my PhD in April 1993 under the guidance of Dr. Irvin Lucki. I studied the neurochemical correlates of behavior and the mechanisms of action of psychoactive drugs. Now I am a postdoctoral fellow at the National Institutes of Health. I am working in a section studying Parkinson's Disease. Currently, I am using extracellular electrophysiological recording techniques to examine basic connections in the basal ganglia of the rat. I would be more than happy to talk with any chem major about my career and how chemistry has helped me. Please feel free to give out this info to students."

Peter Ahn, AB '87, writes that he started a three-year residency program in anesthesiology at Walter Reed Army Medical Center, Washington, D.C.

Anne-Lise Mogstad, BA '88, writes that she is a fifth-year PhD student at Stanford with Professor R.M. Waymouth in polymer chemistry. After graduation from Cornell she got interested in the field of polymer chemistry by working one year in performance plastics at Norton Pampus in West Germany. She plans to enter industry in August–September 1994.

Karin Musier-Forsyth, PhD '89, an assistant professor at the University of Minnesota, received a 1993 ACS PRF grant. Congratulations!

1991–

Deborah C. Bebout, PhD '91, writes, "I have had a lot of fun my first semester as an assistant chemistry professor at William and Mary. Somehow managed to find the time to buy my first house and get engaged as well!"

Katharine J. Covert, PhD '91, who is an assistant professor at West Virginia University, received a 1993 ACS PRF grant. Congratulations!

Richard Posner, PhD '91, writes that he recently took an assistant professor position at Northern Arizona University, the chairman there is **Michael Eastman** (PhD '68). Two other members of the department did postdocs at Cornell (**Robert Zoellner** with Professor Burlitch and **Earl Hoyt** with Professor Meinwald).

—In Memoriam—

James B. Boyd, AB '59, October 7, 1993, Davis, California.

Emil Davidson, PhD '31, April 16, 1993, Scarsdale, New York.

William Allen O'Brien, BChem '36, September 16, 1993, Lexington, Kentucky.

Earl W. Phelan, PhD '28, October 22, 1993.

Donna Price, PhD '37, June 3, 1993, Cockeysville, Maryland.

Sidney S. Ross, BChem '24, August 28, 1992, Miami Beach, Florida.

Oldies but Goodies!

One of our reunion displays is an album of the construction of Baker Lab. In this and future issues of the newsletter we will print selections for you to enjoy.

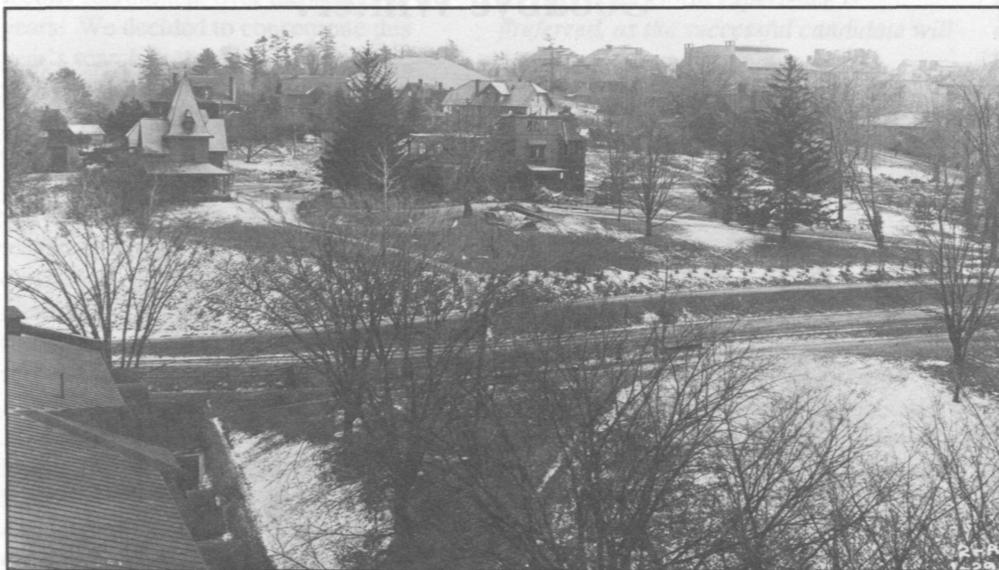


Photo 1: View to the east, site of Baker Laboratory, 1-29-21. Barton Hall and Ag Quad visible upper right middle.



Photo 2: View to the north, 2-1-21. Rand Hall visible middle left.

Don't Forget

Reunion open house on Friday, June 10 from 1:00–4:00 pm in Room 125 Baker Laboratory (Faculty Lounge). Stop by and chat, browse through the displays, have some refreshments, and relax.

ST Olin Renovation

About two years ago the university undertook extensive renovations in S.T. Olin Laboratory to repair and update the 20-year-old air handling and fume hood system, which had reached the end of its predicted useful life.

Renovations have been completed on all but one of the nine floors in the research laboratory building. After the ground floor has been finished in September 1994, work will begin on similar repairs to the air handling system of Baker Laboratory.

Even though the Department of Chemistry's physical plant only makes up 5% of the endowed part of the University, we have been consuming 16% of the energy. As a result of the renovations and implementation of conservation measures, we anticipate seeing a 60% reduction in energy costs.

Though most of the important changes are invisible to the casual observer, we all take pleasure in the fresh paint, new doors and new floor tiles, little touches that make us feel like we have a whole new building.

Come for a visit anytime, and we'll be glad to show you what's been happening.

Cost Savings Award

Associate Director for Technical Operations **John Terry's** cost-saving idea won university recognition! Thanks to John, the Department of Chemistry now has an up-to-date inventory list of unwanted chemicals in the department from which other departments on campus and colleges in the area can select material that will be useful to them. Savings are threefold: (1)

Cornell does not incur the cost of disposal of the chemicals as hazardous waste; (2) the recipients do not have to purchase the chemicals; (3) the environmental impact of use is less than that of disposal.

The original intent of the program was to decrease the number of chemicals in our laboratories, thereby increasing safety while reducing duplication and waste.

The program saves money for Cornell chemists, too. All requisitions for chemicals processed by the department business office are screened before forwarding to vendors to ascertain whether the chemicals already exist within the department. As a result, chemistry research groups have saved over \$1,000 since the program began in November 1993.

Goodbye Winter!



From the Chairman's Office

Last fall, the department began the first stage of an orchestrated plan for new faculty recruitment over the next 3–4 years. We decided to concentrate this year's search in the areas of experimental physical and biophysical chemistry, where, due to retirements and other departures, the department has suffered a significant reduction in the number of active faculty engaged in research and teaching in our physical chemistry curriculum. At the same time, future recruiting efforts are being planned to fulfill other pressing needs in analytical and inorganic chemistry.

I am delighted to announce that Dr. Melissa Hines, currently at AT&T Bell Laboratories, and Dr. Floyd Davis, currently at the University of Southern California, have both accepted offers to join our faculty this fall. The front page of this newsletter features a profile of Melissa; a similar write-up on Floyd will appear in the next issue.

The department's extraordinary success in recruiting this year was particularly noteworthy in view of the current academic job market. As always, competition from our peer institutions for the top young candidates was formidable, and expectations for new assistant professors seemed loftier than ever before. A quick glance at some of the recent classified advertisements in *Chemical and Engineering News* provides some measure of the many criteria by which young scientists looking for academic positions will be judged:

"Successful candidates will be expected to conduct a vigorous and innovative research program and to attract strong extramural funding. The applicant will also be involved in both undergraduate and graduate level instruction, and must demonstrate a strong commitment to teaching and scholarship.

"Outstanding candidates in any area of chemistry will be considered. Minimal requirements include a Ph.D. in chemistry

and exceptional promise in research and teaching at undergraduate and graduate levels. Postdoctoral experience is preferred, as the successful candidate will be expected to maintain a top-flight, competitive research program that attracts significant levels of external funding."

In view of the substantial financial investment universities are being asked to make in the recruiting process, departments everywhere obviously want to cultivate only the highest expectations for new faculty members. Like proud parents, we hope assistant professors will become superstars both in the classroom and in the research laboratory. Whatever their field, we expect them to lead rather than follow, to compete successfully for research support, and to establish an international scientific reputation by the time of their tenure review.

While academic positions seem plentiful this year, a careful reading of the *C & E News* classified section reveals that a significant fraction of college and university job postings are contingent upon finding the necessary resources. Thus search committees at some departments may invite applicants to submit dossiers with the intention of reviewing, and even interviewing, top candidates on campus before obtaining full administrative approval for hiring and, equally important, securing the necessary (usually substantial) startup costs.

Last year, a few such provisional searches were aborted late in the recruiting season, forcing some departments to return resumes and dossiers to hundreds of disappointed applicants who had been eagerly awaiting telephone calls or updates about interviews. This year, even more cancellations are likely, in view of the harsher economic realities many campuses now face. Needless to say, recruiting on such a touch-and-go timetable can have a profoundly demoralizing effect on both candidates and chemistry departments.

Thus an open faculty line, with the resources to hire backing it up, has become an extremely precious commodity. Our department at Cornell has had a steady stream of approved searches over the past few years; moreover, we have been fortunate to enjoy considerable financial support in these endeavors from an enthusiastic university administration. By itself, however, the university's commitment of funds cannot defray all the costs associated with launching an ambitious research program for each new assistant professor.

So where does the rest of the money come from? The department's own internal resources, which include corporate contributions, endowments and gifts of all sizes from our many alumni and friends, have played, and will continue to play, an integral role in our long-range plan for future faculty hirings. Without those important supplemental resources, our recruiting capabilities would be greatly diminished, and the department would not be able to compete effectively in today's academic marketplace for the most promising young faculty.

More on this topic in my next column.

—Bruce Ganem

The Society of Cornell Chemists asks you to support the cost of printing and mailing this newsletter with your voluntary annual dues of \$10. Please make your 1994 check payable to "Cornell Chemistry" and mail it to The Society of Cornell Chemists, Baker Laboratory, Department of Chemistry, Cornell University, Ithaca, New York 14853-1301.

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