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The Chairman's Notebook

THE BENEFITS OF CONSULTING

Of all the aspects of modern university life that trouble observers in the "real" world, none has engendered more debate than how the faculty spends its time. As Derek Bok, former president of Harvard University, wrote recently, "Except for impecunious artists and playboys of independent means, no group in this society is freer to do what it pleases than professors." And one of the most controversial of academic freedoms is the freedom of faculty personnel to engage in paid corporate and industrial consulting. Critics have charged that little good is served by contracting out the services of the academy to the world of commerce—aside from financial rewards to faculty.

Historically, the tradition of hiring faculty as consultants began with the industrial revolution. Academic chemists helped shape the earliest pharmaceutical and chemical manufacturing industries. The spectacularly successful industrial research and development laboratories at corporations like Merck, Eastman Kodak, Dow Chemical, and Du Pont were predicated on a heritage of discovery and innovation often driven by the scientific expertise of the company founder. Well before 1900, many university professors had already been hired as corporate advisers by such visionaries as John D. Rockefeller and Andrew Carnegie. Writing about a faculty consultant who solved a major problem in his steel manufacturing plant, Carnegie acknowledged in his autobiography, "Great secrets did the doctor open to us. . .under the burning sun of chemical knowledge."

While the achievements of professional consultants are seldom mentioned in company reports or other records, a modern history of Du Pont's research and development describes the lasting corporate contributions of Roger Adams, the eminent organic chemist from the University of Illinois. Adams served as a Du Pont consultant from 1928 until the 1950s, and his impressions of this experience are documented in his biography. The services of America's foremost organic chemist didn't come cheaply: in return for monthly visits to Wilmington, Du Pont offered Roger Adams an annual stipend of $5,000, well over half his faculty salary at Illinois. As part of the contract Adams reported on the most exciting developments in the current chemical literature. Besides pointing out areas of potential practical interest to Du Pont, Adams and other consultants were paid to troubleshoot with company scientists. Research managers and bench chemists used their academic counterparts to solve problems and advance projects.

Company scientists also used Adams as a counselor, taking advantage of the student-teacher relationship that develops between client and consultant. Adams frequently served as a sounding board for employees to vent gripes and resolve disputes about the way research was being directed. With his close ties to upper management the Illinois chemist was an ideal arbitrator, helping to keep morale high while guiding Du Pont's long-term research strategies.

By its give-and-take nature, consulting often provides valuable returns to academia as well. For example, it can shape and strengthen faculty research programs; Roger Adams once confided to fellow chemist and Harvard president James B. Conant that he got as much benefit in chemical knowledge from his consulting contract as Du Pont did. So did Paul Flory, who joined the chemistry faculty at Cornell in 1948 and won a Nobel Prize for his contributions to polymer chemistry—a subject he first became interested in while working and consulting at Du Pont. Besides stimulating new ideas, consulting can also generate funding for academic research. Industry/university partnerships such as Cornell's Polymer Outreach Program grew out of contacts first established by faculty consultants.

Like teaching, consulting is a fine art, and the requisite skills can improve pedagogy. A good consultant must possess expert knowledge and keen insight while remaining receptive as others explain an unfamiliar problem. Knowing when to talk and when to listen is essential, and the

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right personal dynamic makes a world of difference. Consulting helped Roger Adams with his teaching. Through industrial consulting, he wrote, "the professor will broaden his viewpoint and appreciate better the character and significance of investigations in industry. He becomes acquainted firsthand with current industrial problems and is thus in a better position to blend into his lectures the basic chemistry most desirable for the student."

Some would argue that professors are paid to teach full-time, that it is wrong for them to accept consulting fees. Yet consulting income has historically helped those who opted for an academic career to narrow significant salary gaps with their counterparts in the private sector, ensuring to the academic world a continuing supply of top-quality faculty. Where potential conflicts arise, proper prior consent and oversight procedures can safeguard the interests of all parties. Moreover, as a skillful consultant and teacher Roger Adams saw clearly what every top academic consultant has since learned—consulting can make the faculty better scholars and educators and help them more effectively prepare students for today's demanding job markets.

Two final thoughts come to mind. First, if faculty consulting were prohibited, who *would* provide the expert advice that enhances corporate competitiveness and strengthens the country's industrial infrastructure? And secondly, if industry turned elsewhere for such help, what would that say about universities like Cornell as sources of important and original thinking?

— Bruce Ganem

The 211th American Chemical Society meeting will be held at the Ernest N. Morial Convention Center in New Orleans March 24–28, 1996. Advance registration deadline is February 23. The preliminary program and registration information are found in the January 22 issue of *Chemical & Engineering News.* **The breakfast for Cornell chemists is scheduled for its usual 7:45 am time on Tuesday, March 26, in the Rosella Room at the Sheraton.**

Department News

NEW LECTURES HONOR MEMORY OF ALFRED T. BLOMQUIST

Alfred T. Blomquist

Former students of the late Alfred T. Blomquist, an outstanding organic chemist at Cornell for 30 years until his retirement in 1971, have funded a new series of departmental lectures in honor of their former mentor. Richard J. Himics PhD '67, who has headed the effort among Blomquist's students and former co-workers, reports that lectures are now funded for several years and that he hopes eventually to establish an endowed fund to support an ongoing series of Blomquist Lectures. The first Blomquist Lectures will be delivered April 17–18, 1996, by John D. Baldeschwieler of the California Institute of Technology.

A Chicago native, Blomquist received his chemistry degrees from the University of Illinois, arriving at Cornell in 1932 as a National Research Council postdoctoral fellow with Professor John R. Johnson. When his fellowship ended, he returned to work in his family's Chicago clothing firm, evidently ending his hopes of continuing his chemistry career. However, World War II depleted the ranks of Cornell's chemistry faculty, and Johnson promptly invited Blomquist to return as a member of the faculty. When Blomquist protested that eight years in the clothing business had taken the edge off his knowledge of chemistry, Johnson simply shipped him a set of the Chemical Society's annual reports with some recent texts and monographs, and after digesting these he arrived in Ithaca in 1941 as an assistant professor, responsible for all organic chemistry courses and graduate organic research.

Blomquist quickly established an international profile for his work in the behavior of small-ring molecules, the chemistry of many-membered rings, and the synthesis of novel monomers and polymers. In his later career he investigated the chemistry of amino acids and low-molecular-weight peptide hormones. In 1960 he became the third member of this department to be elected to the National Academy of Sciences.

Professor Blomquist's research groups were consistently bright, dedicated, and diverse and remembered as among the happiest groups in the department. Blomquist himself was a warm and generous man and an empathetic teacher who frequently helped his students find appropriate post-Cornell positions. He was accessible to his younger faculty colleagues and consistently contributed to the well-being and international reputation of the chemistry department during the three decades of his tenure. His three children all attended Cornell; his son, Alfred Jr. AB '55, and daughter Charlotte Blomquist Jensen AB '58, MS '60, are also former students of their father. Professor Blomquist is remembered also for his elegant speech punctuated by the apposite Latin phrase and for his gentlemanly style of dress in keeping with his family's profession. He died in 1977.

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MONEY RATHER THAN MUD FOR HER TOIL

by Annette John-Hall

Editor's note: Jing Li received her doctorate in chemistry from Cornell in 1990 as a member of Roald Hoffmann's group. She was one of 30 scientists and one of only three chemists to receive 1995 Presidential Faculty Fellow awards. This article is reprinted with permission from The Philadelphia Inquirer, *October 5, 1995.*

Photo by Charles Fox

Jing Li

Jing Li didn't think about making important discoveries in solid-state chemistry when she toiled on a pig farm in China's countryside.

Nor did she imagine, when she was up to her knees in mud, working in China's rice fields, that she one day would receive kudos from President Clinton for her research in chemistry.

She had simply looked beyond the mud and stayed focused on her dream of going to America and becoming a scientist. That dream would bring her to the United States, uncertain, broke, and unable to speak the language, but determined. She would go on to earn a graduate degree and a PhD and become one of the premier solid-state chemistry professors in the country.

And now, Li, a 38-year-old assistant professor of chemistry at the Camden campus of Rutgers University, has gained the recognition she worked hard to achieve: she recently received the Presidential Faculty Fellow award, which is given to 30 scientists and engineers nationwide and includes a $500,000 grant over five years for each winner. The award, from the National Science Foundation, was presented to Li at the White House.

"I couldn't believe it. I couldn't believe that there were only three chemists in the country to receive this award, and I was one of them," Li said.

She has come a long way from her school days in China.

It was the mid-1970s, in the thick of China's cultural revolution, when Mao Tse-tung sent all high school graduates to the country for "reeducation" among the peasants.

For two-and-a-half years, Li rose before dawn to work in the fields. Some days, she would return home, her legs caked up to her knees with mud, too tired to wash up.

"The drinking water, where people wash clothes, where the buffalo goes for a bath, all came from the same pond." Li said. "That kind of life taught me to overcome difficulties. It gave me strength."

"But the general feeling was that it was a waste of time. I could have been at the university."

She has won numerous grants and awards for her research and teaching skills, but the Presidential Faculty Fellow award was more significant for Li and for Rutgers in that Li was the only recipient from a non-research university and was the first recipient from Rutgers.

"It's doubly important that she could accomplish all this in a place where she had to build her lab from scratch," said Luke Burke, the chairman of Li's chemistry department. "It's also been doubly important that undergraduate students have helped her build her lab."

Li said she would use the money to offset the enormous costs of research, to pay for lab equipment and to pay for student assistants, since Rutgers has no graduate program in chemistry.

And she'll continue full speed with her research, in which she explores ways to make new solid-state materials that may have potential applications in industrial technology.

In layman's language, that means that if Li gets lucky, she may discover a new way to juice up batteries or infrared heat detectors or laser materials.

"What she is doing is searching for a new generation of materials that will be used for the next 20 years," said Mercouri Kanatzidis, a professor of chemistry at Michigan State University, who worked with Li in 1993. "The materials that we are using now were discovered in the 1960s. It takes such a long time for materials to make it commercially. You have to make

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CHEMICAL PROSPECTING SUSTAINS ETHNOBOTANICAL TRADITION

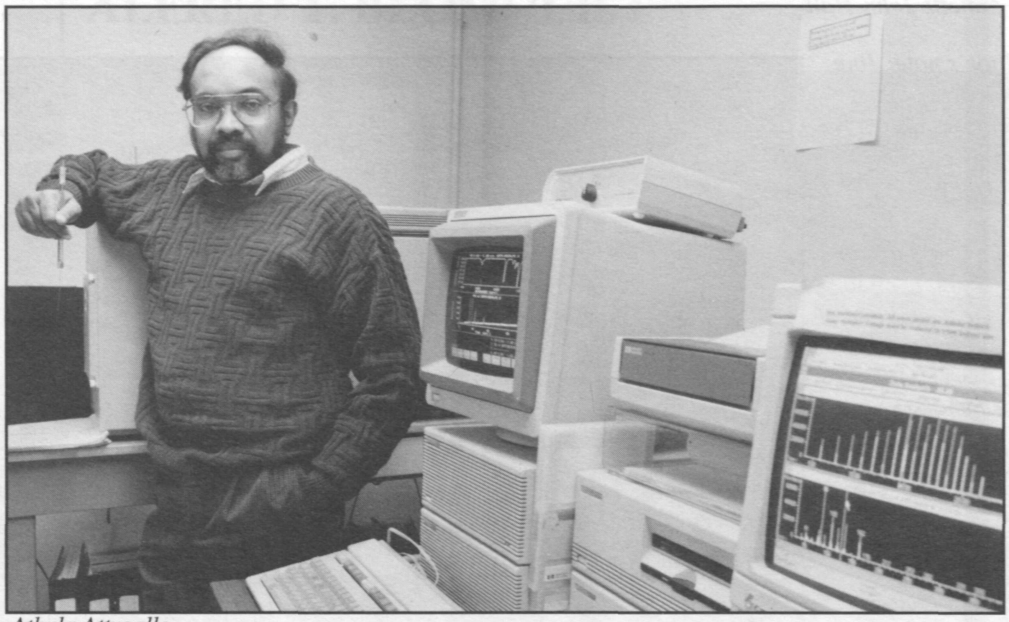

Photo by Adriana Rovers

Athula Attygalle

Athula B. Attygalle, a senior research associate in Dr. Jerrold Meinwald's group, has been awarded a second grant from the Japanese pharmaceutical giant Sankyo Ltd. to conduct an ethnobotanically based chemical prospecting program in Sri Lanka. This greatly extends an existing chemical prospecting program currently conducted by CIRCE (Cornell Institute for Research in Chemical Ecology).

Cornell chemists won their first Sankyo grant in 1993 to collect extracts of plant material from Sri Lanka for screening in Japan to isolate potential pharmaceuticals. The original samples were mainly bark samples selected at random in the Sinharaja Forest area, one of the few remaining regions of unexplored and unexploited rain forest in the world. The Cornell team collaborated with scientists from the University of Sri Jayawardenpura in Sri Lanka; the samples collected by the Sri Lankan botanists were extracted using a solvent, and the residue obtained after evaporation of the solvent was sent to the Sankyo labs in Tokyo for study. "Most of these samples were not very interesting" Attygalle explained, "but a few of the extracts looked promising on the basis of the initial screening."

In fact, of the 300 samples screened over two years, several extracts showed promising activities that are being more closely analyzed. "Although this is better than the average rate of success in similar investigations, such random screening is a very expensive procedure. It seemed reasonable that a targeted selection of screening samples would be much more efficient and cost-effective," says Attygalle. So Sankyo agreed to fund a second phase of prospecting in the amount of $71,000, on the basis of Attygalle's suggestion that if randomness can be reduced in the choice of screening samples, then efficiency, cost-effectiveness, and, naturally, profits, would rise. The samples, Attygalle suggested, could be provided by a group of "native doctors" who practice indigenous medicine in Sri Lanka.

The island and nearby Indian subcontinent have a rich, millennia-old tradition of ayurvedic medicine, practice based on treatment by natural plant compounds. Attygalle suggested that these native practitioners, the repository of a long ethnobotanical tradition, could best target the plant compounds likely to be pharmacologically active substances and thereby eliminate a good deal of the randomness in the original sample selection and screening methods.

There was some initial skepticism, even in the mind of Attygalle, the Sri Lankan chemist suggesting this approach. But, he concedes, "Some of the preliminary screenings [of medicinal compounds] showed that the traditional knowledge is not simply 'hocus-pocus.' Centuries of traditional practice have optimized these formulations. I think the time has come for proper scientific investigations."

So, earlier this year while visiting his home country on another research project, Attygalle spoke privately with some of the Sri Lankan medical practitioners. "Their attitude was very encouraging," he recalls. "They were convinced we would do this thing properly and that we weren't simply trying to steal their secrets, such as has happened in the past, in Madagascar, for example."

In the wake of Attygalle's visit, the Sri Lankan ayurvedists have formed a bargaining group, the Sri Lanka Foundation for Indigenous Medicine. The agreement governing the second phase of Sankyo's screening project will be signed with this group, and the university will then act as its broker with Sankyo. "They are very wary when they hear 'big business.' They're very suspicious of international business interests, but they have confidence in us and they know that all agreements will be in place," Attygalle explained. "They trust us." Central to this agreement is the guarantee that if any commercial product is derived from these investigations, a significant fraction of the sales would be directed to Sri Lanka to support forest conservation efforts.

Attygalle returned to Sri Lanka in December to arrange for the shipment of the medicinal extracts. First samples arrived in January 1996 directly from Sri Lankan medical plantations that supply the indigenous ayurvedic practice in South Asia. "There is already an industry in place that extracts these compounds for practitioners," says Attygalle, "so the extraction will be that much easier."

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Some of the pharmacologically active compounds will be isolated and purified in Cornell's Baker Laboratory. Traditional chromatographic techniques followed by spectroscopic studies will then be used to determine the structures of these compounds. Part of the Sankyo funding will be used to document the ethnobotany and natural history of these plants, together with pharmacological findings, in a database. Eventually, these data will be used to produce a book recording the tradition of botanical medicine in Sri Lanka and documenting active pharmacological compounds. "This is not simply an enjoyable chemical project," Attygalle reflects. "It is one of the most benign ways that we can exploit our environment. And it preserves an ethnobotanical tradition of knowledge which may well not otherwise survive another generation. As we all know, these traditions are dying; both the plants and knowledge about their utility are rapidly becoming extinct."

POLYMER SUBSTRATE IMPROVES DRUG DELIVERY

Cornell chemist Jack Freed has collaborated with fiber scientists in the design and patent of a new chemical process to attach a nitroxyl radical—important in blood pressure and clotting, neurotransmission, and anti-tumor functions—to biomaterials. This innovative chemical process has implications for chemotherapy as well as rendering implants biologically active to promote healing and ward off disease. The other principals in the patent are Keun Ho Lee, a doctoral student, and his adviser C. C. Chu, professor of fiber science in the Department of Textiles and Apparel in the College of Human Ecology.

Nitroxide is a reactive free radical biomolecule with therapeutic anti-tumor capabilities effective in the treatment of some cancers. Besides its anti-tumor properties, its presence enhances the effects of radiation treatment. To date, the controlled delivery of this nitroxyl radical and its derivatives for therapeutic purposes has been difficult because of its instability and short life. By devising a method of attaching these messenger molecules to biocompatible polymeric and copolymeric substrates, nitroxides can be delivered to living tissues at desired concentrations and at controlled rates of release.

Lee developed these polymeric substrates in his work with Chu in the College of Human Ecology; working in Baker Lab, Freed's laboratory did the physical characterization of the nitroxides by electron spin resonance (ESR). Professor Freed has served as secondary adviser to Lee in this multidiscplinary collaboration, which took nearly two years from its inception to the submission of the patent in August 1994. Given the nature of the medical puzzles to be solved, "it made for a sensible collaboration," Freed explained. The team was awarded the patent in December 1995.

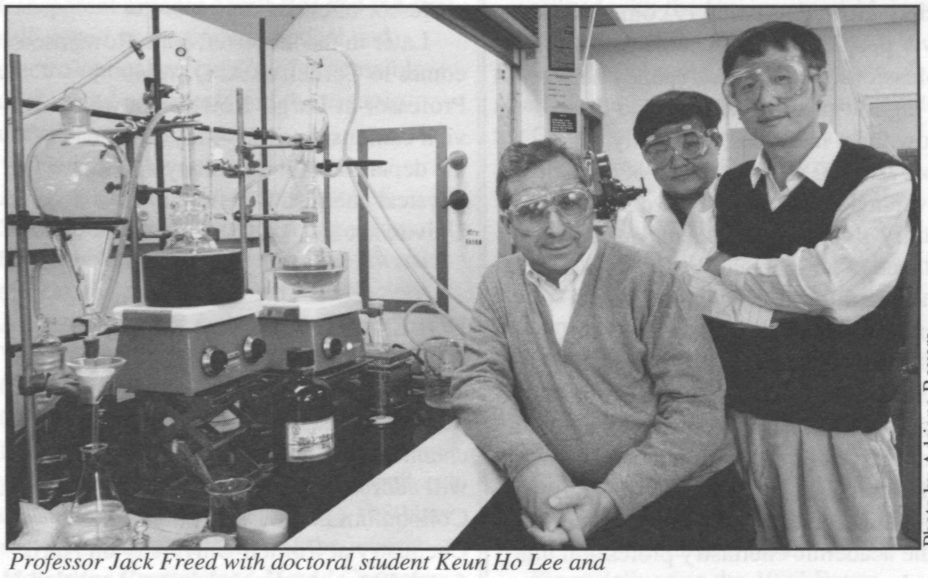


Photo by Adriana Rovers

Professor Jack Freed with doctoral student Keun Ho Lee and C. C. Chu, professor of fiber science

In one method of treatment using a polymeric carrier, a tumor is injected with a solid biodegradable polymer substrate containing the nitroxyl radical. The initial medical effect occurs at the polymer surface and continues as the substrate degrades and releases further radicals into the tissues. A variation of this treatment is the injection of a liquid polymer substrate into the bloodstream for immediate treatment of leukemia and certain other cancerous tumors.

A polymeric matrix substrate was also developed by Lee and Chu for the reconstruction of aged or damaged blood vessels. The new matrix, attached to these nitroxyl radicals, prevents platelet aggregation, or unwanted clotting, and permits the vessel to regenerate or repair itself. "It's a good biodegradable fiber that doesn't produce clotting," said Freed. In addition, biologically active surgical implants could be developed that reduce inflammatory and foreign-body reactions.

This new process has the potential to develop further new biomaterials such as anti-cancer drugs, surgical implants, wound closure biomaterials with improved healing and anti-microbial capabilities, innovative drug control/release devices to fortify the immune system against cancer, and anti-clotting synthetic vascular grafts for the reconstruction of damaged, diseased, or aged blood vessels.

Faculty and Department Briefs

PBS VISITS CORNELL CHEMISTRY

A broadcast team from the Public Broadcasting System's "News Hour with Jim Lehrer " visited the chemistry department in October 1995 to tape a segment, which aired in November. The occasion for the visit was a report on *Winner Take All Society,* a recent book by Robert Frank, professor of economics in the Johnson Graduate School of Management at Cornell, and one of Frank's colleagues at Duke University. In the book, Frank contends that as American society grows increasingly competitive, fewer people find room at the top of their professions, and the discrepancy between the highest-paid individuals and those below them increases drastically. They chose Cornell as an example of a quality university attended by some of the country's wealthiest students and as an instance of a highly competitive academic atmosphere. And they chose Cornell chemistry as one of the nation's top chemistry programs with a nationally ranked faculty and a high proportion of premedical students aiming for places in a competitive and well-remunerated profession. To elucidate their contention about the keen competition at the very top of the academic chemistry profession, the broadcast team interviewed professors **Jean Fréchet, Frank DiSalvo,** and chairman **Bruce Ganem.** These stars, of course, had already been born.

1996 WHITE PROFESSORS INCLUDE TWO CHEMISTS

Renowned chemical physicist Raphael D. Levine of the Hebrew University, Jerusalem, is one of two chemists visiting the campus this semester as Andrew D. White Professors-at-Large. In all, Cornell will host four scholars in this post during the semester.

Levine, who is the Max Born Professor of Natural Philosophy and chairman of the Fritz Haber Research Center for Molecular Dynamics at Hebrew University, delivered three A. D. White lectures in the first half of February. Levine's public lecture, delivered in Baker Lab on February 7, was entitled "Cluster Impact Chemistry: A Novel Route to High-Energy Chemical Reactions." The other series' presentations were "Recent Progress in Rydberg State Dynamics" (Feb. 6) and "Dynamics in Several Electronic States" (Feb. 8).

In several books and more than 400 journal articles dealing principally with molecular dynamics, Levine has effected a strong collaboration among international collections of scientists. This is his third visit to Cornell since 1989 as A. D. White Professor-at-Large. His campus host for this visit was Simon Bauer, emeritus professor of chemistry.

Later in the semester, John Rowlinson comes to Cornell as A. D. White Professor-at-Large. Rowlinson, who will visit campus April 27–May 4, is head of the department of chemistry and the physical chemistry laboratory in Oxford University.

NOBEL CHEMIST TO EXAMINE ATMOSPHERIC OZONE

Mario Molina, one of three atmospheric chemists sharing the 1995 Nobel Prize, will address a General Chemistry Colloquium in the Department of Chemistry at Cornell University on April 4 at 4:40 pm. Molina's lecture is entitled "The Chemistry of Polar Ozone Depletion."

Molina, a member of the chemistry faculty at the Massachusetts Institute of Technology, shared Nobel recognition with Paul Crutzen of the Max Planck Institute for Chemistry (Mainz) and F. Sherwood Rowland of the University of California, Irvine, for their pioneering work over more than two decades on the atmospheric effects of the chloro-fluorocarbons (CFCs) which they showed to be responsible for the depeletion of stratospheric ozone.

In 1974, Molina, then a postdoctoral fellow with Rowland at Irvine, first described how chemically inert CFCs are wafted into the stratosphere where they are broken up by ultraviolet (UV) radiation in a process called photo-dissociation. Molina and Rowland closely calculated the mean atmospheric lifetimes of typical CFCs and deduced the catalytic role of the released chlorine atoms in the destruction of ozone molecules.

In addition, Molina's investigations clearly outlined the threats posed by continuing use and production of industrial CFCs common in refrigerants and aerosol propellants—threats that included a projected ozone depletion of 7–13 percent at the 1974 rate of production, accompanied by an increase in UV radiation. Use of CFCs as propellants was banned in the United States in 1978, and the three chemists were awarded the Nobel Prize on the eve of the 1996 ban of all ozone-depleting chemicals as mandated in the 1987 Montreal Protocol.

Molina is currently studying the effects of CFCs in the northern hemisphere, including the impact of chlorine emissions from a proposed fleet of supersonic transports currently being tested by NASA, and the effects of volcanic particulates on atmospheric ozone. He is a native of Mexico City; he received his PhD in physical chemistry from the University of California, Berkeley, in 1972 and, after a postdoctoral season at Irvine, he became a senior research scientist at the Jet Propulsion Laboratory at the California Institute of Technology. He joined the faculty at MIT in 1989.

MATERIALS SCIENTIST TO PRESENT 1996 DEBYE LECTURES

Theodore Geballe, professor emeritus of chemistry at Stanford University, will deliver the annual series of Debye Lectures April 11–12. His general topic will be materials chemistry. On April 11 Geballe will lecture on "Superconductivity—From an Exotic Frontier to Mainstream Interdisciplinary Science and Emerging Technology," and his lecture on April 12 will be "Itinerant Ferromagnetism in the Perovskite Structures of Ru and Mn."

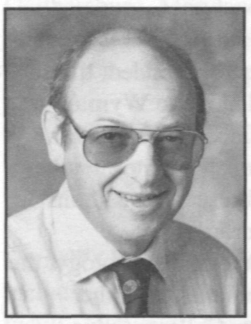
A California native and Berkeley-educated, Geballe has been on the faculty at Stanford since 1967, emeritus since 1990. His research interests are in superconductivity and low temperature physics. He has conducted experiments in the magnetic and semiconducting properties of intermetallic compounds

using heat capacity, transport, and optical measurements. More recently he has investigated the epitaxial growth and properties of thin films of oxide superconductors.

Geballe's work has relied on his successful synthesis of chemistry and physics to synthesize novel materials having technological significance in semi- and superconduction. His interests have contributed to the evolution of materials science and led him to establish a school of materials physics, widely regarded as a model of multidisciplinary research, within the Department of Applied Physics at Stanford.

He is a fellow of the American Physical Society, a member of the National Academy of Sciences, the American Academy of Arts and Sciences, the American Chemical Society, and the Materials Research Society. He has been a Guggenheim Fellow and the recipient of numerous awards, among them the Von Hippel Award of the Materials Research Society. In the society's award citation, Geballe was so honored "in recognition of his ingenious use of chemical principles to synthesize novel materials of technological importance . . . and his leadership in helping to formulate the modern concepts of materials science."

1996 BAYER LECTURES HIGHLIGHT FULLERENES



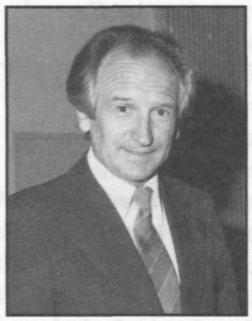
Fred Wudl of the University of California, Santa Barbara will deliver the 1996 Bayer Lectures in the Department of Chemistry on April 29–30. Featuring developments in new organic materials, Wudl's April 29 lecture is entitled "Buckminsterfullerene and Azafullerene Chemistry," and his lecture on the following day will be "Electricity from Light with Organic Polymer Composites."

Wudl earned his doctorate in chemistry at UCLA and, following a postdoctoral year at Harvard, taught chemistry at the State University of New York at Buffalo. After a decade at AT&T Bell Laboratories he moved to UCSB in 1982, where he is professor of chemistry and materials and associate director of its Institute for Polymers and Organic Solids.

His principal research is in the organic condensed matter state and entails the design and synthesis of organic semiconductors (based on conjugated polymers), metals, superconductors, and ferromagnets. His recent interests include electronically conducting polymers, leading to his discovery of the first transparent organic conductor and the first self-doped polymers; the optical and electro-optical properties of processible conjugated polymers; and the organic chemistry of fullerenes.

He is a fellow of the American Association for the Advancement of Science and, among other recognitions, has received the Arthur D. Little Award (1993), the American Chemical Society's Arthur C. Cope Scholar Award (1993), the Wheland Medal of the University of Chicago (1994), and the American Chemical Society Award for Chemistry of Materials (1995). He is the holder of seven patents, serves on advisory boards and as a consultant to industry, and since 1980 has served as associate editor of the journal *Molecular Crystals and Liquid Crystals.*

AGGARWAL LECTURES EXPLORE BIOPHYSICAL INTERFACE



Helmut Ringsdorf of the Institute for Organic Chemistry at the University of Mainz will deliver the 1996 Aggarwal Lectures during the week of May 20–25 in conjunction with the annual Polymer Outreach Program in the Material Sciences Center. Ringsdorf inaugurated the Bayer-Mobay Lectures, subsequently known as Bayer Lectures, at Cornell in 1987.

Ringsdorf will deliver three lectures during his week-long stint with Cornell Chemistry. The general topic will be a consideration of how functional supramolecular systems help to bridge the gap between life science and materials science. In particular, his research over the last decade or more has centered on the structure-function relation of biologically functional polymers, recognition-induced functionality in molecular structure, the tailoring of bioreactive surfaces, and synthetic and natural receptors in molecular systems.

Professor Ringsdorf has been associated with the University of Mainz since 1971, serving the university as professor of organic chemistry, dean of science, and most recently in the Institute for Organic Chemistry; he has been associated with Jilin University (China), the University of London, and was the 1995 Courtauld Visiting Professor at the University of California, Los Angeles. He has served on the editorial boards of numerous scientific journals, including *Advances in Polymer Science, Colloid and Polymer Science, New Polymeric Materials,* and *Polymers.* Since 1989 he has been a member of the Comité Scientifique, Paris, and since 1971 he has served as referee for the Alexander von Humboldt Foundation, Bonn.

Since delivering the 1987 Bayer Mobay Lectures at Cornell, he has lectured at the Universities of Connecticut and North Carolina, Dartmouth College, and McGill University; he was the 1991 Melvin Calvin Lecturer at the University of California, Berkeley; the 1993 Miles Lecturer at the University of Pittsburgh, has lectured in Italy and Israel, and was the 1995 Pirkey Lecturer at the University of Texas, Austin.

Ringsdorf is the recipient of numerous awards including the Alexander von Humboldt Award du Ministère Français de la Recherche (1992), the Polymer Award of the Society of Polymer Science, Japan (1993), The American Chemical Society Award in Polymer Science (1994); he has held chairs at the University of Liège and at the Universities of Leuven and Louvain-la-Neuve (Belgium); he holds honorary degrees from Université Sud (Paris) and Trinity College of the University of Dublin.

***Briefs** continued on page 10*

News from Alumni and Friends

1931–40

Paul L. Barrick PhD '39 reports from Boulder that he retired from the chemical engineering faculty of the University of Colorado in 1985 after a career of 37 years.

1941–50

From Thailand comes a New Year's wish for "the four gems of life, viz., longevity, healthiness, vitality, and happiness throughout the year 1996." **Pradisth Cheosakul** PhD '44 reports a hectic schedule since his 1994 election to the Cornell University Council. Pradisth, who is technical director for Bangkok's Thasco Chemical Company, also serves as chairman of the national committee for UNESCO's General Information Program. Extensive travel to Europe and the United States during 1994 caused physical exhaustion and collapse, and 1995 was spent in several hospital visits and periods of enforced rest. "However," writes his wife, Ubolsri, "it is impossible to turn down requests for him to join conferences." He served as honorary adviser of the Chemical Industry Club, Federation of Thai Industries, and was an invited participant in the Association of South East Asian Nations (ASEAN) Chemical Industries Club in Penang during November 1995. "If you plan to spend your holidays in Thailand," suggests Ubolsri, "especially Phuket, which is a popular island resort on the west coast of Thailand, you should travel to Penang some 400 km south of Phuket, using automobile driven by yourself or chauffeur." It sounds like Pradisth is up and around again.

Henry K. Hall Jr., a former postdoctoral fellow with the late Paul Flory at Cornell (1949–52), received the 1996 American Chemical Society Award in Polymer Chemistry for his seminal research in ring-opening polymerization, which has deepened chemists' understanding of the relationship between ring strain in small molecules and their ability to form polymers. His recent focus has been on the design and synthesis of "smart" polymers for high-tech applications. Hall earned his doctorate at the University of Illinois before arriving at Cornell in 1949. Since 1969 he has been professor of chemistry at the University of Arizona, Tucson.

Marion Hodes, class of 1945, is a medical man in Indianapolis, "still active at the same old stand," as suggested by his retaining an e-mail address at Indiana University–Purdue University Indianapolis. "One son, **Zachary** PhD '78, his wife, Judy, and two beautiful daughters are also in Indianapolis. He gave up folding proteins for bending cardiac catheters." Hodes reports that he "enjoyed the [June '95] departmental reception during the 50th reunion of my nongraduation from Cornell. Sorry I missed Dr. Bauer."

1951–60

Chemistry is a life of discovery, as illustrated by this response to our request for missing alumni information: "Eureka! I have found myself! My full name is **Stephen Robert Cohen,**" writes presumably this same Stephen Robert Cohen, and, to preclude any possibility of further misplacement or misidentification, "Professionally I am Stephen R. Cohen. I publish papers under this name. Socially I am Bob (not Robert) Cohen. This may be why I find myself listed as missing alumnus Cohen, Robert PhD '56, although I have been a member of the Society of Cornell Chemists for years." Well, either a life of discovery or a likely story.

"Most members of the general public," the Cohens continue, "are scientifically illiterate because they want to be. Several years ago, to address this problem I offered a course, 'Science, Technology, and Public Issues,' at the New School in Greenwich Village, an institution with both college-level degree programs and adult education courses. . . .I never had the minimum registration of 12, even though the course could be used to satisfy a science requirement for matriculated students, and the Village is a hotbed of self-styled 'intellectuals.' I have often thought I might have had the minimum registration if I had called the course 'Science, Technology, Social Issues, Tarot Cards, and Guitar Banging.' Now that I am retired as of a year ago last December, I intend to address this problem again, but I am not optimistic."

1961–70

David N. Harpp has been honored by the American Chemical Society's Division of Organic Chemistry. Harpp, a professor of chemistry at McGill University in Montreal and a postdoctoral associate of the late Albert Blomquist at Cornell (1965–66), was awarded the first Edward Leete Award for Teaching and Research in Organic Chemistry.

Harpp's study has explored organo-sulfur chemistry, developing selective desulfurization reagents and sulfur transfer reagents now in common use. He has invented selenium and tellurium reagents used in debromination, selenation, and alkylation reactions. Harpp is perhaps best known for his efforts in science education, in particular as co-creator of the "Chemistry Show," a popular presentation of basic chemistry at Expotec in Montreal last summer (see *Cornell Chemistry,* August 1995).

His other awards include the Union Carbide Award for Chemical Education (Canada, 1982), the Leo Yaffe Award for Excellence in Teaching at McGill University (1982), the Chemical Manufacturers Association National Catalyst Award (1988), the Royal Society of Canada's McNeil Medal for Public Awareness of Science (1992), and Le Prix Beppo for scientific animation for young people.

When the Age of Aquarius ended, life became complicated. **Arlene Wyman Petrie** AB '68 and since then a Harvard PhD ('74) in biochemistry writes that her various teaching and research positions over the years at Harvard, the Massachusetts Institute of Technology, the University of Massachusetts, and her current post at Boston College, "plus raising three children, have kept me busy enough since those simple days of the 60s."

1971–80

One of Professor Frank Long's former students, **Donald Dahlberg** PhD '71, reports that he has been a professor of

chemistry at Lebanon Valley College in Annville, Pennsylvania, since 1980. "Our department has four full-time faculty and 85 chemistry and biochemistry majors. My area of research is in chemometrics and vibrational spectroscopy as applied to process analytical chemistry, especially foods. I am president of the North American chapter of the International Chemometrics Society."

Zachary Hodes PhD '78—see Marion Hodes, 1941–50.

Robert Lucci PhD '77 informs us that he is "an independent consultant as RDL Associates. . . I am also adjunct professor at San Diego State University. I would love to hear about some of my other old colleagues."

One of Lucci's more telepathic "old colleagues," **Gerry Scilla** PhD '77, writes that he is "currently managing the materials science lab at IBM's Burlington, Vermont, microelectronics site. "I spent six years as a scientist and manager of the chemical characterization labs at IBM's T. J. Watson Research Center in Yorktown Heights, New York," he says. He has recently been in touch with two other "ex-Morrisonites," **Jack Fassett** PhD '78 and **Howard Smith** PhD '86, both "doing fine." The last we heard, Fassett was with the National Institute of Standards and Technology in Gaithersburg, Maryland, and Smith was a scientist at Digital Equipment Corporation in Hudson, Massachusetts.

1981–90

Edmund Bathelt AB '85 writes from Northbrook, Illinois, that he received his first issue of *Cornell Chemistry* ("an excellent newsletter"), ending a 10-year lapse in contact. Following his tenure at Cornell, he notes, he earned JD and MBA degrees and is now "an in-house legal counsel with a large manufacturing and distributing concern."

"I'd be willing to bet that almost no one from my class would know me," gambles **Ronald A. Fisher** AB '84 from Temecula, California. "Well, I was pretty quiet back then. I was in the Navy for eight years, did the aircraft aviator thing, completely and happily missing the Gulf War. Then I decided that maybe I didn't like ship life very much, so I went back to school. I have to admit that I totally abandoned chemistry and got a MA in medieval history at the University of Virginia. Blame L. Pearce Williams [John Stambaugh Professor of History Emeritus at Cornell]. Then I moved to California (a) to chase after my fiancée, and (b) to find a job. So what does an ex-naval aviator with a BA in chemistry and a MA in history do for a living? Well, I'm a sales rep for SMC Pneumatics. Be happy—I found a good chance to impress everyone by using 'PV=nRT.'"
Not that old line again.

Mark Kagan MS '86 and now a doctoral candidate at Ohio State University informs us that after leaving Cornell he worked as a mass spectrometrist at the American Health Foundation, a non-profit research foundation in Valhalla, New York, until 1991 when he went to Columbus and took up graduate studies in analytical chemistry.

Howard Smith PhD '86—see Gerry Scilla, 1971–80.

1991–95

A recently wed **Marc Paradis** AB '92 sends an update on his considerable doings since leaving Ithaca. "After graduation, I worked as a lab tech at Massachusetts General Hospital, studying the genetics, molecular biology, and protein biochemistry of Alzheimer's disease. From there I went to the graduate program in neuroscience at the University of Pennsylvania. I am currently a graduate student in the Department of Brain and Cognitive Sciences at Massachusetts Institute of Technology, studying the role of Zn and Cu in normal and abnormal (Alzheimer's disease) brain function. I intend to get my PhD in neuroscience."

In Memoriam

Florence De Laney BChem '29, in Tucson, Arizona
J. Burton Nichols BChem '23, on July 14, 1995, in Wilmington, Delaware
E. Cooper Smith PhD '39, on January 6, 1995, in Terre Haute, Indiana
John H. Weakland BChem '39, on July 8, 1995, in Palo Alto, California

REUNION 1996

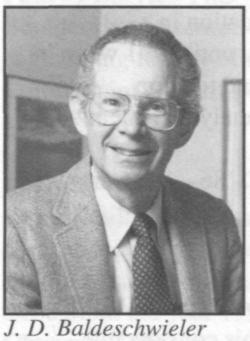
Cornell's Reunion 1996 is slated for June 6–9 and will feature all the fun things you've come to expect from a Cornell Reunion—including, of course, Cornell Chemistry's departmental open house and faculty reception on Friday, June 7 from 1:30–4:00 pm in the faculty lounge off the main lobby at Baker Lab.

The reception for our returning alumni will include refreshments, a chance to meet your old friends and your former faculty mentors, tables piled with the memorabilia of nearly a century, tours of laboratories in Baker and Olin, and molecular modeling and computer simulations on Baker's silver screen.

This year we're planning something a little out of the ordinary. We are working with Cornell's Career Services to present "Making the Transition," a program that will present career search options at Cornell, networking opportunities, and a panel conducted by colleagues who have either made successful career transitions or are acquainted with the arcania of job seeking and hiring policy. The program will be held Friday, June 7, at 2:00 pm in Baker Lab.

If you plan to attend Reunion, or if you're willing to be a member of our panel of career transition experts, please fill out and return the handy form on page 11.

***Blomquist Lectures** continued from page 2*



J. D. Baldeschwieler

The new lecture series will be inaugurated April 17–18 by John Dickson Baldeschwieler BChemE '56, professor in the Division of Chemistry and Chemical Engineering at the California Institute of Technology. His lecture titles will be "New Approaches to Cancer Diagnosis and Therapy," and "Recent Developments in Scanning Tunneling, Scanning Force, and Near-Field Scanning Optical Microscopy." Baldeschwieler's work has focused on nuclear and mass spectroscopy, x-ray diffraction, and the application of these methods to the understanding of the molecular structures of biological systems. He pioneered the use of NMR and double resonance spectroscopy, nuclear Overhauser efects, ion cyclotron resonance, and perturbed angular spectroscopy in chemical problems. Recently he has focused on the use of phospholipid vesicles in cancer diagnosis and therapy, on the development of scanning tunneling and atomic force microscopy for the study of molecules on surfaces, and on novel techniques for producing combinatorial arrays of oligonucleotides.

His professional career has included teaching stints at Harvard and Stanford Universities, as well as a leave spent in the White House's Office of Science and Technology. He is a member of the National Academy of Sciences, the American Philosophical Society, the American Institute of Physics, the American Chemical Society, and a fellow of the American Academy of Arts and Sciences.

Blomquist Lecturers are chosen by the Cornell Chemistry faculty. Ongoing contributions toward future lectures in the series and toward an endowment for permanent funding are welcome. Please send these to the Department of Chemistry, marked "Blomquist Lectures."

***Practicing Chemist** continued from page 3*

20, and maybe one would make it. But you have to make all of them to make one."

And this is where Li's research jumps ahead of the rest of the pack. She has discovered ways to make new materials at relatively low temperatures, which has practical benefit.

"If you can make the same thing at room temperature, you save energy," Li said. "Plus, many of the new materials can't be made at high temperatures—you just can't find them."

Li spends up to 12 hours at a time in her lab, but her cramped office on the Camden campus spoke of her home life. Pictures of her children—Denise, six, and William, eight months—and her husband, Daben, a computer specialist, took up wall space.

Li picked up a thirst for academia honestly. Both her father and mother were professors of agriculture in China.

In 1981, Li arrived in the United States, a 24-year-old graduate student who had only $10 to her name and who was unable to speak English. She didn't even stop to think about the anti-American indoctrination she had received in China, all the bad things she had heard about crime, drugs, and conflicts between rich and poor, black and white.

She only knew that after living on the pig farm, she had little time to waste, and that the United States provided the best program for her chosen field.

She did her graduate work at the State University of New York and studied for her doctorate under Nobel laureate Roald Hoffmann at Cornell University. She joined the Rutgers faculty in 1991.

Li intends to go back to China for scholarly visits. But most of her family has immigrated to the United States. She has no desire to leave the United States permanently.

"I am more or less settled here," the Haddon Heights [New Jersey] resident said.

Still she longs for her native land. She writes poems about China exclusively in Chinese.

"I think the meaning of them is more or less there, but my poetry in Chinese has a rhyme. In translating to English it's almost impossible," Li said.

One of her poems reads:

Do not ask where we come from:
City, countryside, or border area?
Far from home, far from the beloved,
We are here, only because we are carrying on
The same dream.

***Faculty and Department Briefs** continued from page 7*

Professor **Frank DiSalvo** was recently named vice chair and trustee of the Gordon Research Conferences, a nonprofit enterprise that organizes academic conferences to explore recent developments in fundamental research in the biological, physical, and chemical sciences.

The first conference was convened in 1931 by Dr. Neil Gordon of Johns Hopkins University to foster direct communication among small groups of scientists working in the same subject areas or in related interdisciplinary fields. Each conference is an informal session lasting approximately four days, consisting of scheduled lectures and informal discussions that focus on the frontiers of research and technological advance among the international scientific community. Currently, 16,000 scientists from around the world attend about 150 Gordon Research Conferences yearly.

Professor **Roald Hoffmann,** John A. Newman Professor of Physical Science, was awarded the Alexander Hamilton Medal, Columbia University's highest honor, in November 1995. Hoffmann, a 1951 graduate of Columbia, was one of five Nobel laureates and Columbia alumni to receive the medal in the latest round of awards. He shared the 1981 Nobel Prize in chemistry for mathematical explanations of the behavior of atoms and molecules.

The Hewlett Packard Corporation has donated a Windows-based software package to the department's GC–IR facility. The software, valued at $10,665, affords an immediate view of spectra in Windows format and upgrades software currently in use.

REQUEST FOR INFORMATION

Name _____

Home Address _____

_____

Home Telephone _____

Employer _____

Business Address _____

_____

_____

Business Telephone _____

E-mail _____

Cornell Degree/Class Year _____

Terminal Degree/Granting Institution
(if non-Cornell) _____

☐ I'm planning ☐ I don't plan to return to Ithaca for Reunion '96.

☐ I'm interested in attending the career workshop for alumni, "Making the Transition."

☐ I'm willing to participate in "Making the Transition" as a panelist/adviser.

☐ I'm interested in returning to Cornell at some other time for a similar workshop.
(best optional date is _____)

☐ I'm interested in returning to campus to participate as a panelist/adviser for graduate or undergraduate career workshops (late summer/early fall timeframe).

☐ My company or employer offers (will consider) summer internships for undergraduate chemsists.

☐ Are there other activities or events you'd like Cornell Chemistry to host at Reunion?

_____

_____

☐ Are there articles or topics you'd like to see covered in *Cornell Chemistry*?

_____

_____

Please send us your personal or professional news. Tell us about your research or professional occupation for a featured appearance in our "Practicing Chemist" column. Send it by e-mail to <kss1@cornell.edu>, or mail it to our address on the back of this letter.

Retorts

Joshua Telser AB '80, currently a research fellow in the department of chemistry at Northwestern University, adds some background to our article in the November issue of *Cornell Chemistry* about Peter Debye's wartime activities: "I am currently reading *Heisenberg's War* by Thomas Powers (Knopf, New York; 1993). There is a brief description of Peter Debye's situation at that fateful time. According to this book, he did not refuse to give up his Dutch citizenship after the invasion of the Low Countries (May 10, 1940), but did so in October 1939 when the German army weapons office *(Heereswaffenamt)* took over the Berlin–Dahlem Institute to direct it towards atom bomb research. I assume that at that point he went to Cornell for the Baker lectureship. However, it seems that he returned to Germany and then left for good in February 1940. After a sojourn in Britain, the book states, he arrived in New York on April 28, 1940—two weeks before the German invasion of his homeland. It is worth noting that Debye rejected the Nazi regime even before the Netherlands was invaded. By the time he was an enemy alien he had already severed his ties with Germany."

The "BChems of 1911" photo in our November issue prompted a note from **Paul T. Clark** BChem '34 of Hilton Head Island, South Carolina, who writes that '11 "was the first year such a degree was awarded. I learned while I was [at Cornell] that the conferring of the BChem degree ceased about 1936. Right?" Not quite. The last BChem in our records is **Marty Cooper** of Pittsburgh, the solitary BChem of '54.

Clark also observes "that the class of '11 numbered 21 and I believe that was what the number was in the class of '34. Is that about the size the classes always were?" Actually, current records show only five BChems in the class of '34, a typical number for the Depression years. There were, however, 11 additional undergraduates receiving other degrees from the department in that year—a total of 16 undergraduate degrees—as well as three master's candidates. A random sampling of classes after 1934 bears out Clark's surmise, however: in the very next year the BChems numbered 17 and, after a high of 24 BChems in the class of '41, the war instantly reduced the count to single candidates in the following years until the degree was abolished after 1954. The bachelor's degree in the science of chemistry became, oddly enough, the bachelor of arts. Figure that one out.

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Robert Hill, Manager of External Relations
Kelly Strickland, Managing Editor

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