

Badger chemist : the newsletter of the University of Wisconsin-Madison Chemistry Department. No. 43 1999

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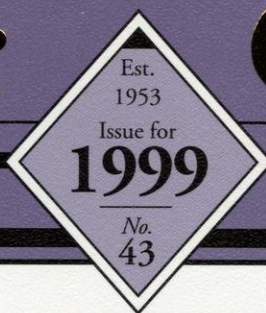
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Badger Chemist



THE NEWSLETTER OF
THE UNIVERSITY OF WISCONSIN-MADISON

CHEMISTRY DEPARTMENT

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Matthew Sanders

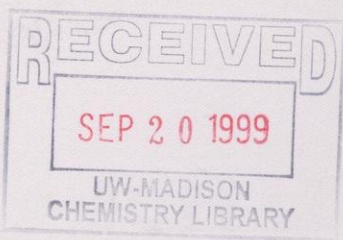
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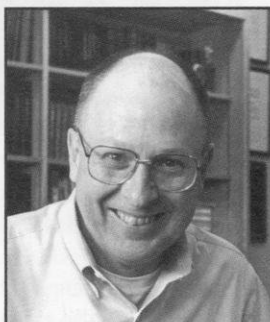
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FROM THE CHAIR

Summer 1999



This letter is the last thing written for the *Badger Chemist*, and it lets me update you on the latest developments.

My first year as chair has been interesting, challenging, and exciting. The addition to the Chemistry building was made possible by generous donations from former students, faculty and friends like you and by the tireless efforts of the past Chair, Fleming Crim, and the Chair of the Building Committee, Bob McMahon. It was my pleasure to watch the groundbreaking ceremony in September and the rapid progress of construction throughout the year. The framework for all eight floors has been completed as of mid-June and we are on target to move into the new addition by the end of the Spring 2000 semester.

Jim Weisshaar, the Associate Chair, headed our faculty search committee and led the effort that resulted in the hiring of five new faculty. Our ability to bring in this many faculty was the result of our success in competing for new positions in last year's strategic hiring initiative and this year's Sesquicentennial Hiring Initiative. Professor David Schwartz is a joint hire between Chemistry and Genetics and is the first hire in the Chancellor's Strategic Hiring Initiative. Four new Assistant Professors will arrive in time for the 1999-2000 academic year. Silvia Cavagnero (Ph.D., Cal Tech; Postdoc, Scripps Institute) is a biophysical chemist, who will study the dynamics of protein folding by NMR. Shannon Stahl (Ph.D., Cal Tech; postdoc MIT) will study organometallic chemistry and bio-inorganic chemistry. Thomas Brunold (Ph.D., Bern; postdoc Stanford; Swiss white water kayaking Olympic team) will carry out spectroscopic studies in bio-inorganic chemistry. Peter Belshaw (Ph.D., Harvard; postdoc, Harvard Med School) is a joint hire between Chemistry and Biochemistry as part of the Chemical Biology Sesquicentennial Hiring Initiative. All of the candidates were strongly courted by other institutions and we were very fortunate to attract them to Wisconsin.

Next year, in addition to integrating new faculty into the Department, we will be searching for two faculty including an organic chemist. The Department is making special efforts to locate outstanding women and minority candidates at earlier stages in their careers. Your help in bringing such candidates to our attention will be appreciated.

In the last month, we've learned of faculty awards in addition to those mentioned in later pages. Professor Hyuk Yu received the Langmuir Award of the Colloid and Surface Chemistry Division of ACS, Larry Dahl was awarded the Gibbs Medal from the Chicago Section of the ACS, and Dan Rich won the Merrifield Award of the American Peptide Society. Three of the four chemists elected to the National Academy of Sciences have Wisconsin ties: Ralph Hirschmann (Ph.D. with W.S. Johnson 1950, Honorary Ph.D. 1996), Richard Saykally (Ph.D. with Claude Woods 1977), and Raphael Levine (Visiting Assistant Professor in the Theoretical Chemistry Institute from 1966-68).

We are looking forward to another exciting year with five new faculty and 60 excellent new graduate students arriving in the fall.

Chuck Casey, Chair

email address:

casey@chem.wisc.edu

CURRENT CHEMISTRY NEWS



Departures

Patti Puccio retired at the end of September 1998 after 37 years of service to the Department. Patti had worked for Analytical and General Chemistry, and in the ICE office. She is coming back on a very limited basis to help with Bassam Shakhshiri's activities.

Karen Rulland retired at the end of August, 1998, after 37 years with the Department. Karen worked in the Organic Division office for many years, and at her retirement was the Graduate Admissions secretary. In this role she coordinated visits from prospective grad student, processed most of the admissions paper (and computer) work, kept graduate student records, and made sure students dotted their i's and crossed their t's when they were filing for dissertator status or their degrees. Former Inorganic and Placement secretary **Mary Kay Sorenson** took over for Karen, combining Grad Admissions and Placement duties to provide a continuous presence for grad students from before admissions to after they get jobs.

Ed Vedejs accepted an offer to move his research group to the University of Michigan after many years as one of the leading members of the Organic Chemistry Division. The majority of the group moved by January, while a few remained behind to finish their research here. We wish Ed the best of fortune in his new home.

Arrivals

Kiessling & Raines Labs add new member!

Kyra Kiessling Raines was born on Oct. 23, 1998 at St. Mary's Hospital in Madison to **Laura L. Kiessling** and **Ronald T.**

Raines. In addition to coming to the office with Mom and Dad, Kyra also enjoys listening to her mother read interesting articles from the *Journal of Organic Chemistry* and *Nature*. We are hopeful that Kyra's first word will be "carbohydrate."

Irene Batac joined the department in the summer of 1998 Department as Assistant Organic Lab Director, and is helping Paul Schatz to manage the ever-increasing enrollment in the organic labs. She received her Ph.D. in Organometallic Chemistry from the University of Illinois at Chicago earlier this year.

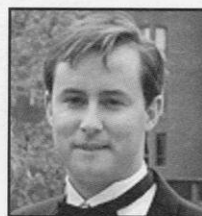


Pam Doolittle has taken over **Bob Lavine's** former duties as Lab Director in Analytical Sciences. Pam is a former student (PhD '99, Woods) from Lakeland College, where she had a double major in Secondary Education and Chemistry. Her graduate research focused on the development and characterization of new electrical plasma sources, and the study of the physical properties of these plasmas using a variety of spectroscopic techniques. Throughout her graduate career she has taught undergraduate courses and been involved in improving the laboratory curriculum used to teach courses in Analytical Chemistry.

Leland "Lee" Lecuyer joined the Department in August as a small computer support specialist, a position the Department was greatly in need of. Lee provides network support, hardware and software support for the many small computers in the Department, and direction for the Web site. Lee came to us from Brandeis when his wife

received a position as a scientist in the College of Engineering.

Dan Sykes has joined the Department as the new Lab Director for Analytical Sciences. His primary responsibilities are instruction and curriculum development in Chem 524 and the graduate-level analytical labs. Dan received his Ph.D in Geochemistry from the University of Alberta and spent three years as a postdoc at Caltech performing *ab initio* calculations and spectroscopic measurements to elucidate the short-range structure of amorphous aluminosilicates. He has taught a variety of courses at several institutions including a course on prospecting at Alberta, geo-science courses at Cal State Fullerton and Edgewood College, and Chem 221 here at the UW. Dan has also worked as a consultant in the field of environmental engineering and currently runs an analytical chemistry consulting business with Pam Doolittle (co-Director in Analytical Sciences).



Faculty and Staff News

Chuck Casey was appointed as Chair of the Department of Chemistry starting July 1998. Chuck has been a member of the Department since 1968 and is presently the Steenbock and Homer B. Adkins Professor of Chemistry. Chuck has received many honors, including an A. C. Cope Scholar Award, the ACS Award in Organometallic Chemistry, and election to the National Academy of Sciences. The University has recognized him with a Romnes Faculty



Fellowship, a University Houses Professorship (named in honor of Homer B. Adkins) and the Steenbock Professorship. Casey spent a large part of August as an expert witness in a patent-infringement lawsuit between Dow and Exxon. He was recruited by Dow, which won this case.

Fleming Crim finished as chair in summer 1998 and took a sabbatical leave during 1998-99. He spent six weeks in Switzerland at Ecole Polytechnique Federal Lausanne (EPFL) with former student **Tom Rizzo** (PhD '83), who is a Professor at EPFL. Fleming is delighted to have time for science again.

Mark Ediger traveled to Fukuoka, Japan, to speak at the Eighth Tohwa University International Symposium on Slow Dynamics in Complex Systems. While in Japan, he also spoke at Kyoto and Osaka Universities. Other invited talks this year included the national meetings of the American Chemical Society and the Canadian Association of Physicists. Mark also presented the Carothers Lecture in Polymer Science at DuPont. The March Meeting of the American Physical Society turned out to be a reunion of sorts for past members of the Ediger group, including **David Adolf** (PhD '91) and **Dean Waldow** (PhD '89).

Art Ellis gave a talk at the National Science Foundation on "Making the Nanoworld Comprehensible". He gave plenary talks at the Biennial Conference on Chemical Education in Waterloo, Canada, and at the NSF U.S.-Brazil Workshop on Materials Science in Rio de Janeiro. He gave the Squibb Lecture at U. of North Carolina-Asheville and chaired the physical sciences subcommittee for UW-Madison New Directions re-accreditation project. The full report can be viewed on the web at:

<http://www.wisc.edu/newdirections/>; comments are welcome.

Laura Kiessling spoke at the Mizutani Foundation Glycobiology Symposium in Tokyo in December, 1997. This was followed by a visit to Mahidol University in Thailand, where she delivered a seminar. She spoke at

the Schering Foundation Symposium on Molecular recognition in Berlin in February, and also at a symposium sponsored by the Volkswagen Foundation in Vaals in March, where **Sam Gellman** also spoke. Laura also spoke at a Gordon Research Conference on Natural Products. She was a winner of the 1999 Cope Scholar Award. For current news, plus addresses and emails of current and former group members, see the Kiessling group web page at <http://www.chem.wisc.edu/~kiessling/>.

Bob McMahon presented research seminars at Univ. British Columbia, Simon Fraser Univ., Univ. Victoria, Purdue Univ.,



Harvard - Smithsonian Center for Astrophysics, Boston College, Dartmouth College, and Univ. Chicago. Bob was also invited to speak at the Canadian Society for Chemistry meeting, the Reaction Mechanisms Conference, the International Conference on Reactive Intermediates (Ascona, Switzerland), the IUPAC Photochemistry Symposium (Barcelona, Spain), and the Fall ACS meeting.

Cathy Middlecamp was elected to the UW Teaching Academy 1998. She joins three other Chemistry Department members: **Jim Taylor**, **Bassam Shakhshiri** and **Tony Jacob**. Cathy also reports that the staff of the old green house, which was on the site of the new chemistry building, got safely moved into Biochemistry in August. They will continue there until their new quarters in the remodeled Daniels building are ready.

As usual **John Moore** had a full schedule of travel and invited presentations. He spent the first week of January in southern California, attending a meeting of the National Visiting Committee for the Chem-Links systemic curriculum project, and presenting a talk and leading a workshop on UW-Madison's New Traditions systemic project at the Gordon Conference on Chemical Education. From there he traveled to Phoenix for the ACS Editors Conference, an annual meeting where editors of ACS journals discuss a broad range of issues related to scientific publications. Also in January he presented the UW-Chem Pages multimedia laboratory materials at a brown bag lunch sponsored by the Biology New Media Center.

In February John was off to the AAAS Annual Meeting in Philadelphia where he gave an invited paper, New Traditions in the Teaching of Chemistry, at a session on Changing the Teaching of Undergraduate Science & Mathematics. Later that month he traveled to Indiana University to deliver the Briscoe Distinguished Lecture in Chemical Education, Can Virtual Reality Have Real Virtue? Using Electronic Media Effectively, which described his efforts to develop and use multimedia instructional

tools for general chemistry courses. John's plenary talk at the Meeting in Miniature of the Cleveland ACS Local Section in March was on this same subject, as was his presentation at the spring ACS National Meeting in Dallas, Texas.

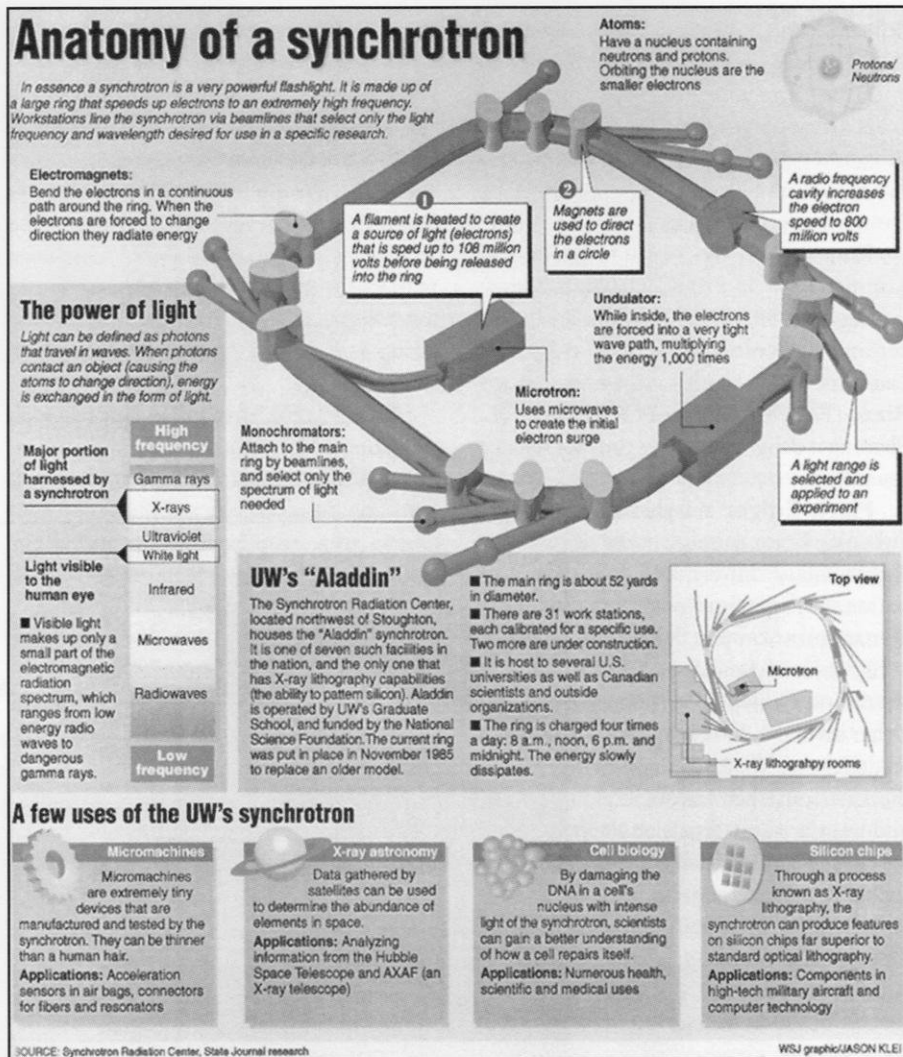
In April the New Traditions project held a workshop for approximately 40 faculty from chemistry departments throughout the midwest. The facilities at the J. F. Friedrich Center on the shore of Lake Mendota are quite attractive, and with the participation of NT Co-PI Clark Landis, NT Associate Director Earl Peace, Lab Director Joe March, and Susan Millar from the LEAD evaluation center, the workshop was a great success. Earl Peace and John led a similar workshop in June at Iowa State University for the Iowa General Chemistry Network. Before the latter workshop had ended, John was



off to Chicago for a conference organized by the Committee on Institutional Cooperation (midwestern research universities) on orientation and training of first-year teaching assistants. Also in June, John was an invited participant in an education workshop on journals and publications held at the annual meeting of the American Society of Plant Physiologists, which was interested in starting its own journal for publication of education papers.

In July the Institute for Chemical Education held two workshops: a new one on Solid State Chemistry for high school teachers and Super Science Connections for K-3 teachers. ICE also did two chemistry camps for middle-school students. In August it was off to the 15th Biennial Conference on Chemical Education in Waterloo, Ontario. John hosted the 75th Birthday Party of the *Journal of Chemical Education*, led a workshop on the *Journal*, participated in the *Journal*'s poster session, and was available in both the ICE and JCE booths in the exposition area. As noted elsewhere in this issue, the ACS National Meeting in Boston included a series of celebrations of the 75th anniversary of the *Journal of Chemical Education*. On behalf of the *Journal*, John hosted the 75th Anniversary Luncheon, Reception, and Poster Session on Sunday, and he wrapped up the *Journal* Symposium, Remembering Yesterday; Looking Toward Tomorrow with a talk on Carrying the Vision of Neil Gordon to the 21st Century.

In September John was off to a Gordon Conference in Oxford, England whose topic was Science Education and Visualization. His presentation, Can Virtual Reality Have Real Virtue: Using Electronic Media Effectively was very well received. In October John was featured speaker at the annual meeting of the Illinois Association of Chemistry Teachers annual meeting, where he presented on the *Journal of Chemical Education*. The next day he was the keynote speaker at the University of Wisconsin System Chemistry Faculties Meeting at UW-Whitewater. A week later he participated in the MACTLAC (Midwest Association of Chemistry Teachers at Liberal Arts Colleges) meeting, where he led a discussion group on the *Journal of Chemical Education*, participated with Betty Moore and Lin Morris at a JCE booth, and led a very



successful New Traditions workshop.

As usual John had several visiting faculty involved in his program in 1998. **Frank Darrow**, who was on sabbatical leave from Ithaca College, visited during the spring semester and contributed to the development of multimedia materials. **Barry O'Grady**, who was on sabbatical leave from the University of Tasmania, came halfway around the world to work on shooting chemistry videos and helped develop web-deliverable quizzes for chemistry 103. **David Whisnant** (PhD '71, Hirschfelder), from Wofford College, was back during the summer polishing up his multimedia problems for introductory chemistry.

In August of 1998 **Hans Reich** traveled to Sendai, Japan to present a lecture at the Carbanion Conference hosted by Yoshinori Yamamoto and Takeshi Nakai. Following the conference there was an interesting symposium contrasting the science education systems in several countries: USA, Germany

(presented by former Organic Visiting Professor **Reinhard Hoffmann**), England, Canada, France, Holland and Japan. In 1997 **Ieva** and I spent an enjoyable month in the Chemistry Department at the University in Alicante Spain, hosted by chemists Miguel Yus and Carmen Najera. In the fall of 1997 we met in Warsaw (she had been in Riga, Latvia) and both went to a conference on Electron Transfer Chemistry in Krakow, Poland. We took the opportunity to visit my birthplace Gdansk, and the Baltic coast town of Sopot where I lived for two years. Unlike Gdansk, Sopot was untouched by the war, and my mother showed me the small two-story building where my parents ran a butcher shop on the ground floor and lived upstairs. After the conference I did a lecture tour in Germany (Aachen, Heidelberg,



Stuttgart, Clausthal, Siegen) followed by the excellent Alkali Metals Conference in Erlangen. This trip was enjoyable not only because of the excellent science, but also because I met a number of former Visitors to Madison (a position now endowed - see article), including **Gernot Boche, Reinhard Hoffmann, Manfred Braun, Ernst Schauermann, Volker Jaeger, Jens Wolff, Andreas Kirschning** and the first Goering Visiting Professor next fall, **Michael Reggelin**.

Jim Skinner gave the Hascoe Distinguished Lecture at U Conn, as well as a number of other talks. He was appointed to the Editorial Board of the Journal of Chemical Physics. He is working on a book entitled "Condensed Phase Spectroscopy of Two-Level Molecules" and he has actually written a few chapters!

Lloyd Smith continued a busy speaking and travel schedule in 1998, with 21 talks in the US and one in Japan (First Annual Workshop on Advanced Genomics, in Tokyo in late April). He and his Japanese host, Dr. Hideki Kambara of Hitachi, amused themselves after the latter event by staying at a Hitachi guest house at the foot of Mt. Fuji for a night, followed by a hike part-way up the mountain the next day. Substantial explanation was needed for Lloyd to learn the proper protocol with regards to sleeping and other aspects of staying in the traditional Japanese guest house. The company Third Wave Technologies, founded by Lloyd and his friends/colleagues Jim Dahlberg (UW-MSN Department of Biomolecular Chemistry) and Lance Fors (an entrepreneurial molecular biologist friend of Lloyd's from 15 years earlier at Caltech) in 1993 continues to thrive; it presently has 90 employees and occupies a new 30,000 square foot building in University Research Park - plans for further expansion are in the works.

On the front page of the Sunday Wisconsin State Journal on February 7th, the Synchrotron Radiation Center was featured, and **James Taylor** was quoted extensively about the importance of new instrumentation that allows scientists to probe and "see" more clearly. The article by Ron Seely had with it a diagram by their graphic artist, Jason Klein, that not only showed what a storage ring is, but he also featured some of the recent research that has been developed at the ring.

We show that diagram on the previous page for all of you who wonder what Jim has been doing on his research leave as Executive Director of the facility.

Jim Taylor and his graduate students, **Paul Dentinger, Steven Rhyner**, and **Geoff Reynolds** had a chapter in a recent American Chemical Society Symposium book. Paul finished his Ph.D. in January, 1998 and is currently at Sandia National Laboratories in Livermore, CA. Steve finished his Ph.D. in December, 1997 and currently is at 3M in St. Paul, MN. Geoff is in the process of completing his Ph.D. this summer. The chapter was entitled "Exploration of Chemically Amplified Resist Mechanisms and Performance at Small Linewidths". The work is of major interest to the semiconductor industry, and the effort describes some of the initial work at understanding the contributions the polymers and the processing make to the roughness of the sidewall of the imaged feature. This is turning out to be a major problem in shrinking the linewidth of microcircuits, and the measurement approaches developed by the research group will be key in developing new resist formulations that permit the linewidths to get smaller and retain the smoothness desired.

Paul Treichel welcomed about a dozen of his PhD students from the late 60s and early 70s and their families to Madison in September. The impromptu reunion in Madison, to renew acquaintances, was organized by **Jim and Pam Benedict** and **Walt and Lil Dean**, with help from others.

Austria, Germany, Israel, Japan, Korea, Slovakia - these are the foreign countries where **Bob West** spread the word about silicon chemistry during 1998. Bob was on leave during the spring semester, when he served as a visiting professor at the Technion in Israel and at the Science University of Tokyo in Japan. As usual he traveled a lot in the USA as well, often flying in the UW Flying Club's trusty Cessna 182.

Bob resigned his Professorship in January 1999, in order to become Director of a Center for Organosilicon Research. The center, located in the Chemistry Department, will be funded by industrial grants. The aim of the center will be to carry out fundamental research in organosilicon chemistry, looking toward applications five to

fifteen years in the future. Two patent disclosures from the center have already been filed with the Wisconsin Alumni Research Foundation.

Hyuk Yu organized and co-chaired the 1998 Biennial Symposium of the Polymer Chemistry Division of the American Chemical Society, held at Williamsburg, VA, on November 22-25, 1998. At the end of Spring, 1998, he received a framed caricature from his Chemistry 116 students with their comments about the course on the back.

Howard Zimmerman traveled in Europe in the summer and gave lectures at Cologne, Duesseldorf, Hamburg, Duisburg, and Erlangen in Germany. Then he gave a lecture at Madrid. In Cologne his host was **Axel Griesbeck**, one of our German lecturers. In Madrid, his hosts were **Diego** and **Mercedes Armesto** (PD '75-'77, Zimmerman); Diego is Professor at the University of Madrid. Then he proceeded to the IUPAC Symposium on Photochemistry in Barcelona where he chaired a session. Zimmerman also was an invited lecturer at the Boston ACS Meeting in August where a Symposium on Organic Photochemistry was held. Additionally, he has been busy organizing his fourth Pacificchem Symposium on Organic Photochemistry to be held in Honolulu (PACIFICHEM2000) organized by the Pacific Basic Countries. In addition, he is an invited participant in a US-Japan Workshop on Solid-State Photochemistry sponsored in the U.S. by NSF, with 10 U.S. and 10 Japanese participants.

At the Boston ACS Meeting in August, **Gil Jones** (PhD '69, Zimmerman) and his wife Pat hosted a "Zgroup gathering". Attending were **Zhaoning Zhu** (PhD '94), from Schering Plough; **Kurt Hoffacker** (PhD '96), University of Connecticut Health Center; **Richard Johnson** (PD '77-'79), Professor at the University of New Hampshire; **Steve Fleming** (PhD '84), an Associate Professor at Brigham Young University; **Andrei Kutateladze** (PD '92-'95), Asst. Prof. at the University of Denver; **Harry Morrison** (PD '62-'63), Professor and Dean at Purdue University; **Joachim "Josh" Schantl** (PD '65-'67), Professor at the University of Innsbruck, Austria; **Dave Schuster** (PD '60-'62), Professor at N.Y.U.; **Laren Tolbert** (PhD '74).



OTHER NOTABLE NEWS



Eighth Hirschfelder Prize in Theoretical Chemistry

The 1998-99 Hirschfelder award was presented in October to Prof. **David Chandler** from the University of California-Berkeley. Dr. Chandler is one of the world's leading authorities in statistical mechanics. He presented three lectures in the Chemistry Department Oct. 5, 6 and 7.

Departmental Colloquium

Frank Weinhold chaired the 1998-99 Departmental Colloquium series, which occurred most first Fridays of the month. The October speaker was Professor Jill Banfield from Geology. In November Jim Skinner talked about single-molecule spectroscopy as a probe of dynamics; and John Moore spoke about his work on teaching with virtual reality in February. In February we also had Dr. Jeff Bada talk about the possibility of life on Mars and Europa. Other speakers included Rep. Vernon Ehlers from Michigan and **Dr. Liz Patton** (PhD '71, West) from Kodak.

Citations

Four members of the Chemistry faculty made the Institute of Scientific Information's list of "1000 Most Cited Chemists, 1981-1997." They were **Bob West** (4679 citations), **Chuck Casey** (3227 citations), **Charles Sih** (3087 citations), and **Fleming Crim** (2427 citations). Every two weeks now, the Department of Chemistry Newsletter is printing a list of recent publications from Department faculty and staff. You can look at the newsletter at

<http://www.chem.wisc.edu/newsletter>.

The John E. Willard Lectures

The 1997-98 John E. Willard Lecturer in the Department of Chemistry was Professor **Robert L. Baldwin**, former chairman at the Stanford University Department of Biochemistry. He received a BA in chemistry from UW-Madison in 1950 and did post-doctoral work in the Chemistry Department before his appointment here as Assistant Professor in Biochemistry. Professor Baldwin is a member of the National Academy of Sciences and the American Academy of Arts and Sciences. His lectures in April 1998, concerned the nature of protein folding and α -helix formation by peptides.

McElvain Seminar Series

The Samuel M. McElvain Seminar Series continued for 1998-99 with some prominent industrial and academic scientists visiting the department. This is the 14th year of the seminars, which were originally funded totally from the Samuel McElvain bequest. The seminar series is organized by graduate students and designed to promote discussions between the visiting scientists and the students. The schedule provides an excellent environment for graduate students to interact with academicians and industrialists in small groups. It is a fantastic chance to meet potential post-doctoral advisors or industrial contacts. Often these visitors share wonderful insights into the future of science and the opportunities available to young scientists. This year's speakers include Professor **Stephen L. Buchwald** from MIT, Professor **Paul Houston** from Cornell; Professor **Mike Sailor** from

UCSD; Dr. **Jeff Brinker** from Sandia Labs; **Rep. Vernon Ehlers** (MI); **Mark Gallop** from Affymax; **Dr. Richard Rava** from Affymetrix; and **Steven Buratto** from UC Santa Barbara.

Global Salute to Polymers

On Feb. 8, 1999 the Wisconsin Section of the American Chemical Society participated in the International Chemistry Celebration 1999, a national ACS event, by joining in the Global Salute to Polymers. About 50 organizations worldwide participated in the "salute". We had two seminars given by **Steve Granick** (PhD '82), **John D. Ferry's** last graduate student, and prepared a plaque honoring John Ferry's contributions to polymer research at Wisconsin. A reception followed the presentation. The plaque is on display in the main lobby of the Chemistry building- the frame is made of polymers (frame furnished by ACS national office).

McDiarmid Wins ACS Award in Chemistry of Materials

Alan MacDiarmid (PhD, Hall), Blanchard Professor of Chemistry at University of Pennsylvania, won the ACS Award in the Chemistry of Materials for his work in conducting polymers. A description of his research and accomplishments appeared in the January 18, 1999 edition of *Chemical & Engineering News*.



Tuition Waiver for Graduate Students

The waiver of in-state tuition became effective in Spring 1998 for Teaching Assistants and in Fall 1998 for Research Assistants and University Fellowship recipients. The tuition waiver for TAs was financed from cuts in TA salaries. Colleges that lost tuition income from RAs have had to recoup that loss; the Chemistry Department lost about \$124,000 in capital equipment money retained by Letters & Science to help them make up for the loss of tuition revenues.

New Chemistry PhD Major Option

In December the department approved a new Ph.D. major option in Materials Chemistry. This new chemistry degree will sit alongside our existing major options in analytical, Inorganic, Organic and Physical. While the Materials Chemistry degree program will not be in full swing for at least one more year, current first-year chemistry students have already entered the program. Faculty serving on the steering committee for this new program are: Rob Corn, Art Ellis, Bob Hamers (committee chair), Bob McMahon, Gil Nathanson, and Hyuk Yu.

The Goering Visiting Professorship

An endowment gift from Margaret Goering has enabled the creation of the "Harlan L. Goering and Margaret L. Goering Visiting Professorship." An inaugural symposium will be held next fall. The first Goering Visiting Professor will be Dr. Michael Reggelin from the University of Frankfurt.

Madison Continues to Rank High In Places to Live Surveys

Madison once again took honors among the nation's cities as a fine place to live. *Money*

magazine used a new rating format this year, identifying top places by region and size. Madison was rated the best mid-sized city (250,000-1,000,000) in the Midwest. Minneapolis was the top metro area and Rochester, Minn. was the top small city. The November edition of the *Ladies Home Journal* rated Madison the top city for women in the United States.



Past and present building committee members – Phil Certam, Gil Nathanson, Paul Treichel, Hans Reich, Dan Cornwell, John Moore, Don Gaines, Bob McMahon, and Fleming Crim.

UW-Madison Also Continues to Receive High Marks

The University was rated the eighth best public national university, and 36th among all national universities, in the *US News & World Report* "America's Best Colleges" guide. The September *Kiplinger's Personal Finance Magazine* rated UW-Madison sixth best in the top 100 values in state universities.

"Once Upon A Christmas Cheery"

Chemistry & Winning the 1999 Rose Bowl.

The (chemical) elements of success in this year's Rose Bowl were vividly shown to Bucky Badger and an entire PBS television audience BEFORE the game was played. As part of his 29th annual program ONCE UPON A CHRISTMAS CHEERY IN THE LAB OF SHAKHASHIRI, and to the delight of Bucky Badger and the audience, Professor Shakhashiri predicted that Wisconsin would

beat UCLA. This 1998 presentation of the Holiday Lecture is available on VHS video-cassette. Also, available are cassettes of the shows from 1997 and 1996, the 25th Anniversary Show from 1994, and the 1993 presentation. The price is \$30 for one, \$50 for any two, \$75 for three, \$100 for four, and \$125 for all five (no videos from 1995 are available.) They may be obtained by sending

a check payable to UW CHRISTMAS LECTURE, along with your request to: UW CHRISTMAS LECTURE, DEPARTMENT OF CHEMISTRY, UW-MADISON, 1101 UNIVERSITY AVE., MADISON, WI 53706.

Remember to include your name and mailing address, and to specify the tape(s) you want. Please do not send cash; charge and COD orders cannot be accepted. Wisconsin residents please include 5% sales tax. All cassettes are in the North America NTSC format.

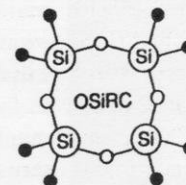
National Mole Day, 1999

National Mole Day, celebrated every Oct 23 from 6:02 AM to 6:02 PM, will have as its 1999 theme "It's a Mole World."



Organosilicon Research Center

The Center can be reached at:



Organosilicon Research Center
University of Wisconsin-Madison
Robert West, Director
1101 University Avenue
Madison, WI 53706-1396 USA



CHEMISTRY EDUCATION ACTIVITIES

Journal of Chemical Education

1998 was the 75th year of publication of the Journal—an occasion that was marked by celebrations throughout the year. One of the first was the institution of a series of articles known as Viewpoints: Chemists on Chemistry. This was made possible by a grant from The Camille and Henry Dreyfus Foundation, Inc. These review articles are written by a chemist or group of chemists with special expertise in a particular field, with the aim of providing an overview of that field's accomplishments, importance, and prospects. The goal is to reflect on developments during the past 50 years and to predict how each field will evolve over the next 25 years. The total perspective encompassed by Viewpoints corresponds with the 75 years of the Journal's lifetime and reflects its comprehensive interest in all of chemistry. The 50-year retrospective view of each field corresponds with the period during which the Camille and Henry Dreyfus Foundation has been supporting the chemical sciences. The articles have been very successful. They are being used as a great resource by both teachers and their students.

One of the first of the Viewpoints articles, "The Computer as a Materials Science Benchmark", is a product of Art Ellis's group in this department. The authors are Dean J. Campbell, Julie K. Lorenz, Arthur B. Ellis, Thomas F. Kuech, George

C. Lisensky, and M. Stanley Whittingham. In the article, Ellis and coworkers delineate benchmarks in materials science by exploring the components and evolution of the computer. The computer has helped drive developments in the field of materials science, and developments in materials science have made possible the unprecedented information processing power that we almost take for granted today. Ellis and coworkers also explore the future of computer chip manufacturing and the many opportunities chemists will find in materials science.

These Viewpoints articles were published during 1998:

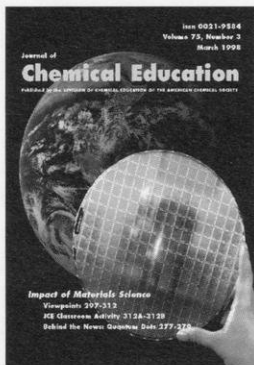
- The Flexible Surface: Molecular Studies Explain the Extraordinary Diversity of Surface Chemical Properties, by Gabor Somorjai and Günther Rupprechter: February 1998
- The Computer as a Materials Science Benchmark, by Dean J. Campbell, Julie K. Lorenz, Arthur B. Ellis, Thomas F. Kuech, George C. Lisensky, and M. Stanley Whittingham: March 1998
- Chemical Education: Past, Present, and Future, by J.J. Lagowski: April 1998
- Bioorganic Chemistry: A Natural and Unnatural Science, by Ronald Breslow: June 1998
- Anatomy of Elementary Chemical Reactions, by Andrew J. Alexander and Richard N. Zare: September 1998
- The Art and Science of Organic and Natural Products Synthesis, by K. C. Nicolaou, E. J. Sorensen, and N. Winssinger: October 1998

The Viewpoints articles will continue during 1999.



In early August the Journal threw a 75th Birthday Party at the 15th Biennial Conference on Chemical Education, a conference that attracted about 1500 people. The cake was a seven-foot monster in the shape of a round form of the periodic table. Hundreds of people attended the party and a few lucky ones were able to take home one of the elements as a souvenir. The Biennial Conference also held a poster session honoring the Journal. Two members of the Journal staff (Betty Moore and Gail Thorson) authored seven different poster presentations, each describing the life and work of a Journal editor. These began with founding editor Neil Gordon and ran through to present editor John Moore. The information in these posters was the basis for the article, "Guiding the Journal of Chemical Education" that was published in the November 1998 issue.

Additional activities at the Biennial Conference included two workshops for high school teachers, led by High School Editor Emory Howell, Editor John Moore, and Nancy Gettys and Jon Holmes of the Journal staff. Assistant Editor Lin Morris oversaw the Journal booth in the exposition hall, where we introduced many people to the Journal and saw many old friends of both JCE and the UW-Madison chemistry department.



Less than three weeks after the Biennial Conference we traveled to the ACS national meeting in Boston where there was another round of festivities. These began on Sunday noon with a special luncheon



honoring some of those who have contributed significantly to the Journal. We were especially honored that Glenn and Helen Seaborg could join us. Seaborg

was the chair of the Viewpoints Editorial Board. The photo is one of the last taken of Glenn Seaborg, who was felled by a stroke later in the week and passed away at the end of February.

Sunday evening the Journal and the Division of Chemical Education had a Gala Reception complete with ice cream sundaes, a much smaller birthday cake,



and an array of posters authored by a wide variety of people in honor of the Journal.



The seven posters by Betty Moore and Gail Thorson made their second appearance at this session and were a great hit with attendees. The following day the symposium

"Remembering Yesterday; Looking Toward Tomorrow" was held. It included contributions from three former editors: William Kieffer, W. T. Lippincott, and J. J. Lagowski. Associate Editor Mary Saecker (PhD '94,



Nathanson) described how the Journal works today—much different from its founding in 1924! Associate Editor Jon Holmes described the vast non-print part of our publishing program. Editor John Moore discussed "Carrying the Vision of Neil Gordon into the 21st Century".

For those who could not be a part of the celebrations at either of the meetings, there was a special four-color glossy wall calendar featuring graphics of chemical demonstrations. It was delivered along with the September 1998 issue. The basis of the calendar was great chemistry video shots by Jerry Jacobsen, our videographer. The design was by Betsy True (UW Department of Medical Illustration), who is JCE's cover designer, and Betty Moore acted as overall project editor.

As the year of celebrations drew to a close, the final issue in Volume 75 featured a series of commentaries under the heading *The State of Chemical Education: Where Are We and Where Are We Headed?* This special section asked this question of 24 people, a group as diverse as our readership. Their thoughtful responses are in the *Chemical Education Today* section of the December issue.

Back in Journal House, the Chemistry annex at 209 North Brooks Street where most of the Journal staff reside, there was great jubilation and much noise in May when the roof was finally replaced. The people and equipment are now safe from cascades during rainstorms.



There have been some changes in staff, too. Gail Thorson (PhD '96, Crim) returned to the Crim group labs and to teaching general chemistry and was replaced by Jennifer Miller (PD '98, Perry Frey), who is planning for a career in scientific writing and publishing. Jennifer is responsible for preparing JCE issues for publication on the World Wide Web and on the annual JCE-CD. As a result of an agree-

ment between JCE and the UW-System libraries, the full Journal is available online to chemistry departments in all 26 UW-System institutions.

Erica Jacobsen joined the Journal staff in September. Before her graduation from UW-Madison in 1995, she was a student



worker with ICE, JCE Software, and Project SERAPHIM and did undergraduate research and a senior thesis with John Moore. Erica's research

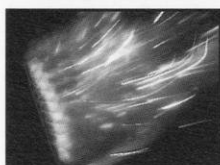
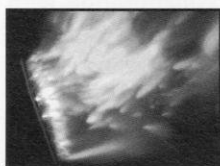
was done in collaboration with videographer Jerry Jacobsen and the Landis research group and culminated in publication of the videotape "HIV-1 Protease: An Enzyme at Work" by JCE Software. After teaching chemistry, AP chemistry, and physics for two years at a rural public high school in Minnesota, Erica is back in Madison and we have been fortunate to be able to draw on her teaching experience as well as her other talents.

As was true for many journals, online publication was a very important part of our thrust in 1998. While publishing online is not new to us, JCE Online+ was expanded and improved and became a subscription option. The early count of JCE Online+ subscribers indicates a very good reception and a glance at the site (<http://JChemEd.chem.wisc.edu>) indicates a wealth of information. There is, of course, everything that is in the print Journal. But that is just the start. There are an increasing number of supplementary materials that range from detailed laboratory experiments to a collection of video interviews from the Lawrence Berkeley Lab. There is an online index of everything published



since 1924. There are JCE Internet articles that have been specifically designed for presentation electronically and include animations, interactive spreadsheets, and other features not possible in print. There are feature columns that are only on the Internet: Conceptual Question and Challenge Problems, Mathcad in the Chemistry Curriculum, the Chemical Education Resource Shelf, and an Equipment Buyers Guide.

JCE Software, edited by Jon Holmes, continues to release many new pieces of instructional software and video. Chemistry



Comes Alive! is especially appealing because of its ability of its video to truly make chemistry come alive. The video includes flame tests, ammonia fountains, an ice bomb, an ammonium dichromate volcano, and lots more. Two volumes (each on a CD-ROM) have been released to date. Additional volumes are in progress.



Institute for Chemical Education (ICE)

This year has been a busy one for the Institute for Chemical Education (ICE) as it continues active involvement in chemistry education. Our SPICE outreach program of chemical demonstrations and hands-on chemistry in schools continued. The Fun with Chemistry camp for middle school stu-

dents was held again in June and July, introducing almost 130 5th, 6th, and 7th graders to the wonders of chemistry. The two one-week afternoon camps featured lots of laboratory activities on topics as diverse as polymers and chromatography.

A major ICE activity was professional development workshops for teachers. The summer of 1998 marked the fifth year of the very successful Super Science Connections (SSC) workshop. In addition we did a brand new Chemistry and Materials Science (CMS) workshop.

In the SSC workshop thirty K-5 teachers from Madison, Beloit, Verona, and Oregon schools spent two weeks in the Chemistry Building learning how to integrate physical science with other curricular areas - literature, writing, math, and social studies. This hands-on, inquiry-based workshop was taught once again by an award winning foursome of elementary teachers from around the country: Pat McKean, Celeste Bunting, Margie Zimmerman, and Carol Colegate. Their knowledge and enthusiasm make this workshop a success year after year. They were joined in 1998 by Prof. Alberto Rodriguez from the UW School of Education's Curriculum and Instruction Department. Alberto worked with the instructors and participants to include a multicultural focus in the teaching of science.

The CMS workshop, funded by the National Science Foundation, hosted 40 high school teachers from as far away as Florida, Alaska, and Hawaii. These motivated teachers were led for three rigorous weeks through lectures, demonstrations, hands-on activities and laboratory experiments that provided them with knowledge of very current topics in materials chemistry, which is not normally included in pre-service teacher training. Topics included crystal structures, defects in solids, semiconductors, superconductors, diffraction, piezoelectrics, and many others - all related to tangible, real-world examples. The basis for the content of the workshop was Teaching General Chemistry: A Materials Science Companion, which was prepared several years ago by a group headed by Art Ellis. Several companies donated materials to the workshop, and one even donated a presenter (Larry Woolf from General Atomics). The participants received lots of classroom materials to take home. Instruc-



tors were David Shaw of MATC, Gary Trammell of University of Illinois-Springfield, and Dean Campbell of Bradley University (formerly a postdoc for Art Ellis). The participants did have a little time during their stay to have fun; field trips included a visit to the Trek Bicycle plant in Waterloo, Wisconsin.

ICE also has three new publications to add to our list of materials for K-12 teachers. Following the theme of materials science, the latest kit in our partnership with the General Atomics Sciences Education Foundation is titled Explorations in Materials Science. This laboratory kit allows students to explore the mechanical, physical and transport properties of common materials, with samples of the materials that teachers or students make themselves. Another laboratory kit with a materials science foundation is the Nanocrystalline Solar Cell Kit, which allows students to build solar cells using the juice from berries. Currently in preparation is the DNA Optical Transform Kit, developed by the Ellis group and collaborator Amand Lucas of the University of Notre Dame de la Paix, Namur, Belgium. This kit provides a way to simulate the x-ray diffraction experiment that led to the discovery of the structure of DNA. A description of the experiment appeared in the Journal of Chemical Education in March of this year.

Do you know of teachers or others in your area who are interested in science materials for K-12? Do you or your colleagues carry out programs that involve schools, teachers, or children? If so, let us know about what you are doing and don't hesitate to ask us to send you our catalog of materials. ICE almost certainly has something you can use to help young people learn about chemistry and science.



New Traditions Project

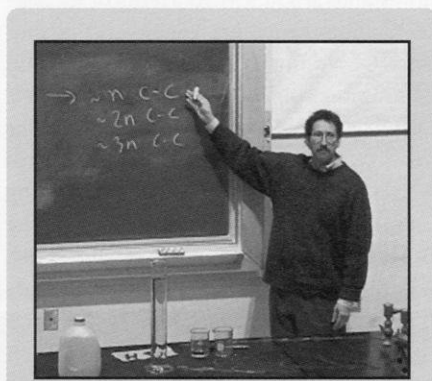
"Establishing New Traditions: Revitalizing the Curriculum," more informally known as the New Traditions (NT) Project, is one of five systemic chemistry curricular reform projects funded by the National Science Foundation. The overarching goal of the NT Project is to facilitate a paradigm shift in the chemistry curriculum so that the focus shifts from faculty-centered teaching to student-centered learning. This project is developing a pedagogy that uses new forms of assessment and evaluation, technology and computer tools, and guided inquiry laboratory experiments as supplements to the traditional lecture. The vision of the New Traditions Project is that this paradigm shift will be propagated throughout the chemistry curriculum, such that students obtain a deeper learning experience, improve their level of understanding and their ability to apply learning to new situations, enhance their critical thinking and experimental skills, and increase their enthusiasm for science in general and chemistry in particular. In support of this vision our goals are to develop and thoroughly evaluate strategies and infrastructure that allow a variety of types of institutions to adopt and adapt what we have created, and to disseminate these as broadly as possible.

The largest single freshman course on the UW-Madison campus is now General Chemistry - Chemistry 103. During the fall semester of 1998, this course enrolled approximately 2300 students in seven different lecture sections. It is also significant that the students in this course represent more than 75 different prospective majors from every college within the University except the Medical and Veterinary Schools. Thus, the changes made in this course have the potential to affect many of the future graduates who will enter the workforce.

One area in which the NT project has focused its efforts is the nature of the laboratory experiments. In many traditional chemistry laboratory experiments in the first two years of course work, the primary goal is on the verification of the results of someone else's application of the scientific method. The laboratory experiments used in the past often failed to convey the cooperative nature of scientific research - that sci-

entists rarely make discoveries alone. In fact, many of our students had never experienced the rich, robust environment of ideas that characterizes group work. The entire first-year chemistry laboratory program at UW-Madison now consists of guided-inquiry experiments in which students work together toward solving a problem.

The instructors for some sections of the General Chemistry course structure the discussion sections so that students work together in small groups on problems that are more difficult than the typical end-of-chapter problems in a text book and that require multiple pieces of input data before a satisfactory solution can be reached. Some of



Prof. Art Ellis uses a multiple-choice ConcepTest question to engage students in discussions during the lecture. For a free copy of the videotape, "Making Lectures Interactive with ConcepTests," contact Dr. G. Earl Peace, Jr., at gpeace@facstaff.wisc.edu.

these problems may even be open-ended so that more than one solution is possible, thus requiring the students to negotiate/compromise on various competing demands and introducing them to the ambiguity that is often found in scientific results.

In 1998, our National Visiting Committee, chaired by Dr. Robert W. Parry of the University of Utah, issued a very positive report on our first three years of activity. Based on this report, the National Science Foundation has pledged to fund the project for its final two years.

The NT Project is now disseminating our pedagogical innovations through a series of workshops, "Strategies for Promoting Active Learning," that will be scheduled in various parts of the country over the next

year. While a workshop may be tailored to the needs/wishes of the participants, a "typical" NT workshop usually consists of the following sessions:

- Active Learning in Lectures - ConcepTests and Challenge Problems
- Active Learning in the Laboratory - Guided-Inquiry Experiments
- Computer Tools for Active Learning - Mathcad Documents in Physical Chemistry
- Assessment and Evaluation - Alignment of Course Goals, Strategies and Outcomes
- Changing Departmental Culture - Welcoming the Skeptics Among Us

Thus far, we have volunteer workshop hosts at each of the following colleges/universities: Texas A&M University (College Station, TX), Christian Brothers University (Memphis, TN), Norfolk State University (Norfolk, VA), University of Oregon (Eugene, OR), Ashland University (Ashland, OH), Roanoke College (Salem, VA), Univ. of Illinois - Springfield (Springfield, IL), North Georgia College and State University (Dahlonega, GA), Edinboro University of Pennsylvania (Edinboro, PA), University of North Carolina - Greensboro (Greensboro, NC), St. Peters College (Jersey City, NJ), University of Notre Dame (Notre Dame, IN), Methodist College (Fayetteville, NC), University of North Carolina at Charlotte (Charlotte, NC), Sacred Heart University (Fairfield, CT), and the University of Tennessee (Knoxville, TN). There will probably be some consolidation of sites as we work with the hosts to confirm dates during the coming months. Any alumni who are interested in participating in a workshop should check our web site (<http://newtraditions.chem.wisc.edu/>) for the location nearest you.

If no workshops are scheduled for your area and you are willing to volunteer as a workshop host, please contact Dr. G. Earl Peace, Jr., Associate Director of the NT Project, by e-mail at:

gpeacejr@facstaff.wisc.edu
or by "snail mail" at:
Department of Chemistry
UW - Madison
1101 University Avenue
Madison, WI 53706-1396.



CHEMISTRY BUILDING ADDITION & RENOVATION

Bob McMahon, Building Committee Chair



Construction Bids

At the time BC42 went to press last spring, the Department anticipated bid opening for the project in May 1998. During the early stages of the bid period, however, several general contractors informed the State that they would not submit bids because the bid period was too short, given the complexity of the project. In order to foster competition, and to increase the probability that the State-mandated minimum of three bids would be received, the State extended the bid period by several weeks. The wisdom of this action was demonstrated at the general contractor bid opening on June 17th, when J. P. Cullen and Sons, who originally indicated that they would not bid on the project, submitted the low bid. The fact that the bid was \$1.0 M higher than the cost estimate caused considerable anxiety during the two-week interval between bid opening dates for the general contractor and the other trades. Miraculously, the bids for mechanical, electrical, plumbing, fire protection, and telecommunications were \$2.7 M *below* the cost estimate! In aggregate, the bids were \$1.7 M lower than projected. The unanticipated surplus of \$1.7 M, complemented with an additional \$1.5 M provided by the campus administration and College of Letters and Science, provided the \$3.2 M in funding that was necessary for construction of the Seminar Hall.

Budget Increase

During the past year, the Department worked closely with the College and the University to raise an additional \$7.5 M to allow the completion of all components of the project. These additional funds represent a

25% increase in the project budget, which now stands at \$38.9 M. As a result of successful facilities proposals, generous contributions by alumni, faculty, and friends, and commitment of Departmental gift funds, *the Department contributed nearly 20% of the funds for this project.* The budget increase of \$7.5 M was approved by the State Building Commission in August 1998. At the Building Commission meeting, Gov. Tommy Thompson acknowledged chemistry representatives Fleming Crim and Bob McMahon. Fleming Crim thanked the Governor, Building Commission members, and State Division of Facilities Development representatives for their support of the chemistry project. Of late, the Thompson administration has been supportive of the Chancellor's efforts to sustain excellence in the biological sciences at UW-Madison. After the Building Commission meeting, Fleming and Bob chatted with the Governor about the importance of continued State support for the physical sciences, emphasizing both the fundamental importance of the physical sciences and the central role that chemistry plays in the development of materials science and biological sciences.

Groundbreaking Ceremony

On September 16, 1998, a brilliant early autumn day, the Department held the long-awaited groundbreaking ceremony. The excitement of the day derived from the fulfillment of an important Departmental need, the satisfaction (and relief) at successfully negotiating a rather bumpy road during the planning phase, and the reality of reaching the construction phase, which was

underscored by the large hole in the ground at the corner of Charter and Johnson streets. A 30-minute program featured comments by Lt. Gov. Scott McCallum, Provost John Wiley, Dean Phil Certain, and Professors Fleming Crim and Bob McMahon. The festive ceremony and reception drew an excellent representation of State and University officials, members of the Design Team and Construction Team, and alumni, students, staff, and faculty of the Department. Following the reception, the University of Wisconsin Foundation hosted dinner for Wall-of-Honor donors.

"Percent for Art" Project

The State of Wisconsin designates 0.2% of the funding for major construction projects to the "Percent for Art" program, which is designed to enhance all State facilities through installations of public art. Two striking pieces recently brought to campus through this program include the glass installation "The Mendota Wall" by Dale Chihuly in the Kohl Center and the terrazzo floor "Biotechnology Waltz" by Norie Sato in the Biochemistry building. The "Percent for Art" program is managed through the Wisconsin Arts Board (www.arts.state.wi.us).

The Chemistry "Percent for Art" project will enable a commission / acquisition of approximately \$60,000. The "Percent for Art" selection committee identified three sites for location of artwork: Daniels building - interior (the lobby area outside the main lecture rooms); Daniels building - exterior (portico); and the main corridor that will connect Daniels, Mathews, and new addition. (Photos of these locations are available at



www.chem.wisc.edu/news/artlocations.html.) A brief description of the project, sites, possible themes, and budget, was included in a prospectus that was mailed to artists across the country during April 1998. Eighty-six artists responded by submitting slides of their previous work. During September, the "Percent for Art" selection committee reviewed these submissions and requested additional information from six semi-finalists. In January of this year, the committee invited four finalists, Robert duBourg (Harpers Ferry, WV), Mel Fisher (Philadelphia, PA), Michaela Mahady (Stillwater, MN), and Beverly Precious (Indianapolis, IN) to Madison. The finalists visited the Department on March 19th; during a busy day they toured the Department, viewed the potential sites for location of artwork, learned about the mission and the personality of the Department, interviewed with the selection committee, and attended a Departmental reception held in their honor.

Artist Bev Precious was selected by the "Percent for Art" selection committee to create an installation of glass and metal. In the coming months, Ms. Precious and the Department will work together to develop the relationship and mutual understanding that will be essential in achieving the final design for this very exciting project.

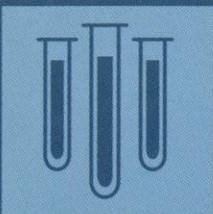


"Percent for Art" Selection Committee:

| | |
|--------------------------|---------------------------------------------------|
| DAVID BLACK | Project Designer, Flad and Associates |
| JAMES CARLEY | Wisconsin Arts Board |
| CAROL CHAPIN | The Guild |
| FLEMING CRIM | Professor, Department of Chemistry |
| MICHAEL EBERLE | Project Architect, Flad and Associates |
| PETER FLANARY | Artist |
| PHILIP HAMILTON | Professor, Department of Art |
| PETER HEASLETT | Facilities Planning and Management, UW-Madison |
| CHRISTINE MANKE | "Percent for Art" Coordinator, State of Wisconsin |
| ROBERT MCMAHON | Professor, Department of Chemistry |
| RUSSELL VAN GILDER | Project Manager, State of Wisconsin |

(l to r) L&S Dean Phillip Certain with donors C. V. Wittenwyler, Betty Herschfelder, Irv Shain and Cliff Borg.





ADDITION & RENOVATION PHOTOS

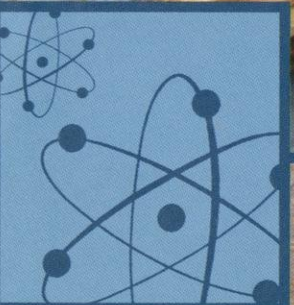


ABOVE LEFT

(l to r) Paul Treichel, Mitch Dibbs (Dow),
Jesse Roeck (Dow), Al Preuss, Irv Shain,
Phil Certain, Chuck Casey.

ABOVE RIGHT

(l to r) Bob Bolz (Vilas Foundation), Bob
Rennebohm (Vilas), Phil Certain, Lt.
Governor Scott McCallum, Provost John
Wiley, Chuck Casey.





THE OVERVIEW

This year there were four main themes at the forefront of Departmental activities. The new building and remodeling project, Department participation in campus hiring initiatives, faculty recruiting, and scholarship.

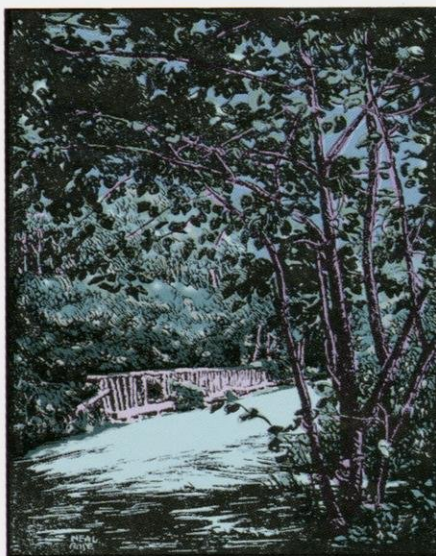
Building Addition & Renovation

Bids for the new building and remodeling construction had not yet been opened when the *Badger Chemist* went to press last year. As described by Bob McMahon in an earlier article, the bidding led to some pleasant surprises. The groundbreaking last summer was a long-awaited festive occasion. This issue includes pictures of the groundbreaking and the demolition of the two houses that stood on the construction site, as well as pictures from the construction. As I finish the *Badger Chemist*, the roof of the new building is being poured, and the foundation for the new seminar hall in the southeast corner of the block is being dug. The new building will house synthetic labs on the top four floors, a large addition to the Instrument Center, and administrative offices. Following completion of the addition in summer 2000, the existing Daniels and Mathews buildings will be substantially renovated. This will be a difficult time for everyone in the Department, as we try to plan for the least disruption in the research labs while accomplishing the remodeling. The renovation is scheduled to be completed about the end of 2001. The construction site can be viewed at <http://Hchemcain.chem.wisc.edu>.

Faculty Hiring Initiatives

The Department has been involved in several initiatives on campus that will bring faculty into cooperative research projects across a number of departments. The first hire in the chancellor's strategic cluster hiring initiative was Professor David Schwartz from New York University. He will be appointed and teach 50% in Chemistry, with the rest of his appointment being split between Genetics and the Biotechnology Center. Recruiting is currently going on for hires in a nanostructured materials strategic initiative. This may bring people onto

campus who have at least some part of their appointments in the Chemistry Department. The Department has been in the forefront of these initiatives, which provide the opportunity for hiring excellent scientists doing exciting frontier research. In addition, Chancellor Ward established a program for a Sesquicentennial Hiring Initiative to celebrate the 150th anniversary of the University. Professor James Weisshaar submitted a proposal for the De-



partment that will lead to the addition of two faculty members to Chemistry. This will allow expansion into new areas such as Biological Chemistry, Materials Chemistry, Environmental Chemistry and Computational Chemistry. Professor Laura Kiessling was a leader in proposing a second successful Sesquicentennial Hiring Initiative in the area of Chemical Biology, and Professor Peter Belshaw has accepted our offer and will join us soon as the first faculty member hired under this initiative.

Faculty Recruiting

In addition to the hiring initiatives, the Department has also been involved in faculty

recruiting to replace faculty lost through retirement and resignation. Don Gaines and Bob West have retired, although they continue to pursue their research as *emeritus* faculty, and Ed Vedejs has departed for Michigan. The Department was able to fill the positions in the inorganic division when Shannon Stahl and Thomas Brunold, two of the most coveted members of this year's field of talented inorganic chemists, accepted offers to join the faculty next September. In addition, Silvia Cavagnero will join the Physical Division and will pursue biophysical research. We are optimistic that we can hire new organic faculty over the next several years. A particular goal for Departmental hiring in the coming years will be to add women to our faculty. We will be asking for your help in bringing excellent women scientists to our attention.

Graduate Education & Research

Members of the Department continue to be recognized for their research achievements. Laura Kiessling and Dan Rich have received Cope Scholar Awards from the ACS and Lloyd Smith received a MidCareer Award from the University. Hyuk Yu was awarded the 1998 Japanese "Kobunshi Koseki-sho", the Distinguished Service Award for promotion of polymer science, from the Japan Society of Polymer Science. Fleming Crim was among 146 people elected to the American Academy of Arts and Sciences. Larry Dahl has recently been selected as the winner of the 1999 Gibbs Medal awarded by the Chicago Section of the ACS. These awards are testimony to the high regard which our faculty are held in by their colleagues. The Department continues to attract well qualified grad students based on the established excellence of the research. A new building and the addition of new faculty members will make the Department even more attractive in the future.



THIS 'N' THAT

Chris Abelt (BS '78, Zimmerman) has been promoted to Full Professor at William and Mary.

Kristin P. Andersen (BS '90, McMahon) accepted a position with the Office of Waste and Chemicals Management, Environmental Protection Agency, Seattle, WA.

Tim C. Anderson (BS '96) has been employed since July '97 by the U.S. Department of Justice, Drug Enforcement Administration, as a Forensic Chemist.

Tesuya Asuke (MS '90, West) is working at Japan Polyolefins Co., Ltd (a joint venture involving Showa Denko and Nippon Petrochemicals), and is also a Technical Committee Member of Japan Petrochemical Industry Association for ISO/TC61 Plastics. In October 1998, I went to Whistler of Canada in order to attend the ISO/Technical Conference 61 Plastics.

Joe Baker (PD '66-'67, Zimmerman) was Professor at the University of Queensland, Australia for many years. Most recently he is in Canberra, Australia as "Commissioner for the Environment". He writes that he has just been reappointed as Commissioner for another five years and is enjoying applying his chemistry to environmental issues. He says he still has "hands on contact with his research group in marine natural products as well as linkages to the Australian National University in Canberra".

Prof. **Christopher Bender** (PD '67-'69, Zimmerman) of Lethbridge University, Canada writes that he was Department Chairman for 9 years, and then became Associate Dean of the Faculty of Arts and Science in 1996. But he still gets into the lab and says he is now writing his "best paper". He and his wife, Christine, are now headed for Hawaii for a brief vacation.

Roger Binkley (PhD '67, Zimmerman)

is now an Emeritus Professor at Cleveland State University and also an Affiliate Scholar at Oberlin College. He writes that he now has begun a chemistry writing career and his first text is entitled "Carbohydrate Photochemistry".

Edward Birge (BA '65) has been a faculty member at ASU since 1972, and for the past seven years has been chair of the Microbiology Department.

Eric Buxton (PhD '96, Smith) is working as a Scientist for Lexicon Genetics, Inc. in The Woodlands, TX.

Andrew P. Combs (BS '89, McMahon) returned to campus in October 1998, recruiting scientists in medicinal chemistry and combinatorial chemistry for DuPont Pharma.

Dave Cospser (PhD '69, Goering) sends the following: Thanks for the "Season's Greetings" letter and the news about the department. The following is some personal news covering the last few years of my career: I retired December 1 from Nalco after almost 30 years there in research. Most of that time I worked on the chemistry of pulping and papermaking. During 1994-1996, I was based in Leiden, The Netherlands, setting up Nalco's new European research center there, especially the paper lab. Since returning to the U. S., I've worked on several projects dealing with the chemistry of paper processes and continued working with the Europeans. This included overseeing our collaboration with STFI (the Swedish paper research institute in Stockholm). I hope to continue consulting and teaching about paper chemistry during retirement. And play golf!

Cathy Dantzman (PhD '98, Kiessling) started working at Zeneca after leaving Madison.

Amy Dean (PhD '98, Kiessling) is a postdoctoral associate with John Frost at Michigan State U.

Prof. **Dietrich Doepp** (PD '95-'97, Zimmerman) of the University of Duisberg, Germany reports that he now has a group of 15 students including two non-German postdocs. He has been invited to give a plenary lecture at Solar '99 in Cairo and also at PACIFICHEM2000. He is planning on attending the Organic Photochemistry Gordon Research Conference next summer and hopes he can stop in at the UW at the same time.

Luther E. Erickson (PhD '59, Alberty) is currently Dodge Professor of Chemistry, at Grinnell College in Grinnell, IA. He retired from classroom teaching in 1998 after 36 years on Grinnell faculty) and was honored at an alumni symposium in April of 1998 which featured a presentation and posters by 25 alums and was attended by over 60 former students. His email is ericksol@ac.grin.edu

Mark Fink (PhD '83, West) was principal organizer of the 31st Organosilicon Symposium, held in New Orleans in May. Mark is a professor of chemistry at Tulane University. Other Wisconsin graduates and postdocs participating in this meeting included **Phil Boudjouk** (North Dakota State U.), **Joyce Corey** (U. Missouri-St. Louis), **Peter Djurovich** (San Jose State U.), **Takahiro Gunji** (Science Univ. of Tokyo), **John Mangette** (Silar Laboratories), **Kunio Oka** (Osaka Prefecture U.), **Harald Stueger** (U. Graz), and **Mark Steinmetz** (UW-Milwaukee), as well as our own **Bob West**.

Patrick Gallagher (PhD '60, King) sends the following update: I was one of Ed King's students back in the 50s. There is



probably no currently active member in the department who remembers me. Besides the three years as a Lieutenant in the Marine Corps between my MS and PhD, I spent thirty years at Bell Laboratories prior to becoming the Dow Professor for Materials Chemistry and Engineering at The Ohio State University. At that time it was a joint appointment between the Chemistry and MS&E departments. I retired from there with Emeritus status on June 30, 1998. We immediately moved to South Carolina where we have a lovely home on the shore of a large lake in the foothills of the Blue Ridge Mountains. I accepted an unpaid Adjunct Professorship at Clemson University where I have a nice office in their Research Park. This enables me to continue writing, editorial work, and any research or consulting that I may choose. Currently, my major project is helping to introduce thermal analysis into their instrumental analysis course. I look forward to receiving future alumni mailing and "Badger Chemist" at my new address: 409 South Way Ct, Salem, SC 29676-4625, Phone 864-944-6464, FAX 864-944-6573, e-mail: gallagher.8@osu.edu, or pgallag@clemson.edu

Paul Geissler (PhD '62, Willard) retired in 1997 after 35 years with Exxon. He sent pictures of himself and his wife Monica on vacation.

Eva Gordon (PhD '98, Kiessling) is working at the institute for Chemistry and Cell Biology of the Harvard Medical School.

Janet W. Grissom (PhD '87, Vedejs) recently completed her MD at the University of Utah. She is currently a resident in Psychiatry at the University. Janet and her husband **Charles B. Grissom** (PhD Biochem '85, Cleland) recently celebrated the arrival of their first child Cynthia Marie.

Harry Guttman (PhD '94, Record) finished his NIH Postdoctoral Fellow position in the Record Laboratory to assume a postdoctoral position at the United States Environmental Protection Agency in Cincinnati, Ohio.

Charles C. Han (PhD '74, Yu), currently a NIST Research Fellow, will receive the 1999 High Polymer Physics Prize of the American Physical Society at the Atlanta March Meeting of APS. The same prize was awarded to John Ferry in 1966 and Hyuk Yu in 1994.

Lori Hoffman (BS '90, West) writes "I am currently a Business Development Manager at Regis Technologies in Morton Grove, IL. Regis manufactures bulk pharmaceuticals for other companies' clinical trials. The job is a mixture of project management and sales. It has allowed me to run into other Badger Chemists while on the road or at tradeshow (Caryn & Michael Bowe, John Buchanan, & Fred Plagge to name a few)." lhoffman@registech.com or www.registech.com

Steve Holmgren (PhD '95, Gellman) writes: I am a lecturer/post-doc in the Department of Chemistry at the University of California-Irvine, while my wife, **Mary Cloninger** (PhD '96, Whitlock) is doing a post-doc with Larry Overman.

Alexei Ignatchenko (PD '95-'98, Zimmerman) write from Texas Eastman Chemical to say that he really likes his new position.

Chung Yup Kim (PD, Yu) of Korea Institute of Science & Technology, received the 1999 March First Prize in Engineering in Korea, which is one of the most distinguished scholarly honors, established to commemorate the Independence March in 1919 during the Japanese occupation of Korea, 1910-45.

Prof. **Reinhart Keese** (PD '62-'69, Zimmerman) has been a professor at the University of Bern, Switzerland since leaving here in 1969. He writes that he is planning some collaborative research with European colleagues.

Following postdoctoral research with Weston T. Borden (Washington), **Carl Kemnitz** (Ph.D. '95, McMahon) joined the chemistry department at California State University - Bakersfield as assistant professor of chemistry.

Mark Konings (PhD '87, Casey) is working as a product development chemist for 3M Dental Products Division. His third product was recently released to the market, a silicone impression material useful for part of the process in fabricating a crown or bridge. He was recently awarded my fourth patent. Mark has gone back to school, starting an Executive MBA program at the Univ. Minnesota Carlson School of Business in September.

David Kurtz (PD '71-'73, Zimmerman) writes from Ohio Northern University

that he is doing some special research with juniors there. He also reports that one of his daughters has become a chemistry major.

Josh Kurutz (PhD '98, Kiessling) is a postdoctoral associate at the University of Chicago Medical School working on atomic force microscopy.

Brian Laird (PD '89, Skinner) just received tenure from U. Kansas.

Joseph R. Lennox (PhD '97, Burke) was at Wyeth-Ayerst Research for six years, three of them while he was completing his PhD. He is currently a Senior Scientist in Medicinal Chemistry with ICAGEN (Ion Channel Advances).

Julie Lorenz (PhD '98, Ellis) joined the technical staff of Rohm & Haas.

Yasunari Maekawa (PD '92-'93, Zimmerman) has taken a position with the Radiation Research Institute of the Japan Atomic Energy Research after having been with the Hitachi Corporation.

Dustin Maly (BS '98, Kiessling) is in graduate school at UC-Berkeley, working with Jon Ellman.

Pat Mariano (PhD '69, Zimmerman) and his wife Debbie have moved to the University of New Mexico. For many years Pat was professor at the University of Maryland.

Rogério Koury Menescal (PhD '94, West) is a Financial Planner with John Hancock Mutual Life Insurance Company. After his Ph.D. he spent 2 years at the Hawaii Sugar Planter's Association as a Research Associate doing sugar chemistry. In 1996 he opted for a career change and has been working with seniors in the areas of investment and estate planning. His email is: rkmenescal@hotmail.com

Jeff Moore (Zimmerman Grad Student, 1988) writes from the Oxford Molecular Group that he now has a group of 50 people working under his direction. He only occasionally writes software himself, an area of special interest to him when he was at Wisconsin.

Cathy Murphy (PhD '90, Ellis) wrote to say she is now an associate professor in the Department of Chemistry and Biochemistry at the University of South Carolina. She is an Alfred P. Sloan Research Fellow, 1997-99; and also a Camille Dreyfus Teacher-Scholar for 1998.

Mark Murphy (PhD '82, Dahl) sent an updated address: 109 Glen Way, Atlanta,



Georgia 30319, 404-842-0194, uvlaw@mindspring.com.

Roberta Naujok (PhD '97, Corn) writes that she's working in 3M's Corporate Analytical Technology Center in St. Paul, MN where her primary duties include method development and problem solving for 3M proprietary materials and technologies. She's enjoying her work immensely, and has even enjoyed better weather up here than in Madison! 3M's Tech Forum invites speakers, internal and external, to speak at 3M on subjects of interest - she is currently chair-elect of the the TF's Analytical Chapter. UW-related speakers for Analytical have included Marc Anderson from UW Water Chemistry and **Brian Frey** (PhD '96, Corn) from Lake Forest College; **Dan Higgins** (PhD '93, Corn) from Kansas State U will be speaking in May. Bobbi is also involved with the Center for Process Analytical Chemistry in Seattle, WA, and is on the executive committee of the Minnesota Section of the ACS. It was a real treat to assist at the Chemistry Olympiad last spring here in the Twin Cities. One observation from this contest: high schools are NOT teaching redox chemistry or electrochemistry!

Takashi Norisue (PD, Yu) has been a KOZA professor at Osaka University for several years, currently having a very large research group of 20 students; he has delivered 3 invited lectures at international symposia in 1998, and will become the chair of the Department of Macromolecular Science, Faculty of Science, starting April.

Peter Olgilby (BS '77, Zimmerman) is now a Professor at the Aarhus University in Denmark. Peter moved from the University of New Mexico, where he was professor of chemistry also. Peter writes that he is getting his research up to speed and has a number of publications underway. He finds that equipment can be obtained in Denmark which would not be accessible in the U.S. but that funding is not subject to peer review in Denmark.

Prof. **Albert Padwa** (PD '62-'63, Zimmerman) visited Wisconsin in October, and also gave a lecture on his research at Emory University.

Howard Palmer (PhD '52, Hirschfelder), professor emeritus of energy science and associate dean emeritus of the Graduate School at Penn State, has been awarded

the Alfred C. Egerton Gold Medal of The Combustion Institute for "distinguished, continuing and encouraging contributions to the field of combustion." Dr. Palmer notes that the same medal was awarded to his mentor, Dr. Hirschfelder, in 1966.

Eric Patterson (Ph.D. '96, McMahon) spent the 1998-99 academic year as visiting assistant professor of chemistry at Grinnell College (Grinnell, IA). Eric accepted a tenure-track position as assistant professor of chemistry at Truman State University (Kirksville, MO) beginning in fall 1999.

Nikki Pohl (PhD '98, Kiessling) is an NIH postdoctoral fellow with Chaitan Khosla at Stanford.

Malli Rao (PD, West), DuPont Fellow and Distinguished Scientist, has just been named a winner of DuPont's 1999 Lavoisier Medal for Technical Achievement. This is DuPont's highest award for scientists and engineers.

Robert Rosenthal (PhD '49, Adkins) writes "After a career at Gulf Research and 14 years as an Adjunct in Organic at Florida International University, I retired in 1990. My wife and I taught Arts and Crafts on cruise ships for 20 years and now spoil our two grandsons. Along the way, I made Bronze Life Master in Bridge." Msrwr@aol.com

Christopher Samuel (PD '72-'74, Zimmerman) has returned to the University of Warwick, England after two years in the U.S. He is now formally retired as professor but is a Fellow of the Chemistry Department collaborating with colleagues. He writes that his Wisconsin broad training in synthesis, MO theory and "even single-photon counting" has enabled this collaboration.

Will Sanders (PhD '98, Kiessling) is at Wyeth-Ayerst.

Jeff Saven (PhD '93, Skinner) is a first-year assistant professor at U. Penn.

Professor "**Josh**" **Joachim Schantl** (PD '65-'67, Zimmerman) wrote about his activities. He gave papers at the Gordon Research Conference on Heterocyclic Compounds in June, and at the 16th National Organic Conference of The Royal Australian Chemical Institute in August. He also gave seminars at several universities in the United States and Australia, and spoke at the 116th National Meeting of the ACS. There was also a reunion of former HEZ students.

Alex Scheeline (PhD '78, Walters) was promoted to full professor this year at the University of Illinois.

Paula Schlax (PhD '95, Record) completed her first semester as an assistant professor of chemistry at Bates College, Lewiston, ME.

After concluding his NSF Postdoctoral Fellowship with Robert R. Squires (Purdue), **Randal A. Seburg** (Ph.D. '95, McMahon) accepted a position as Senior Research Chemist, Pharmaceutical Analysis and Control, Merck Research Laboratories, West Point, PA.

Terry Sheppard (BS '90, Zimmerman) has just joined Northwestern University as an Assistant Professor after completing his Ph.D. work with Ron Breslow at Columbia.

Alex Sluzas (PhD '75, Yu) sent an update. After earning my PhD in 1975, I went to work for Rohm and Haas Company in the Philadelphia area as a chemist. In 1980 I transferred to the Patent Department, and meanwhile earned my law degree from Temple University in 1983 (magna cum laude), and served as an editor of the Temple Law Quarterly. In 1985 I entered private law practice and have enjoyed working in patent preparation and prosecution, litigation and other intellectual property matters since. I am currently a partner in Paul and Paul, one of the oldest patent law firms in the country. My wife Rose and I have three children, the two older ones are interested in science, and the youngest is an avid female ice hockey player.

Mark Steinmetz (PhD '77, Zimmerman), Professor at Marquette University and **Bill Horspool** (PD '74-'75, Zimmerman), Professor at Dundee, Scotland send regards and report that they are doing well.

Louise L. Stracener (Ph.D. '98, McMahon) accepted a position as Research Scientist in the Packaging/Fiber/Film group at BP-Amoco in Naperville, IL.

Dr. Horst Sulzbach (MS '91, Zimmerman) has written sending Christmas greetings and to send a few informational items. He has joined the Henkel company in Duesseldorf, Germany. He did his Ph.D. with Paul Schleyer in Erlangen after having a year's Fulbright to spend at Wisconsin. Then he did a postdoc at Ohio State. There he met



Kate and recently married her.

Kaoru Tamada (PD, Yu) of National Institute of Materials and Chemical Research in Tshkuba, Japan, has been spending a sabbatical year in Max-Planck-Institute for Polymer Research in Mainz, Germany, and will return to her post in Japan in May.

Laren Tolbert (PhD '74, Zimmerman) is taking on an Associate Editorship for JACS starting Jan 1, 1999. Laren is now Professor and Chairman at Georgia Tech.

Tom Waddell (BS '66) received his PhD in Organic Chemistry from UCLA in 1969, was a postdoc at Berkeley, and has been at the University of Tennessee, Chattanooga since 1971, where he is currently Guerry Professor of Chemistry. He is particularly grateful to Dr. Al Wilds for inspirational teaching of organic. He minored in geology while at UW, and his research area of Evolution/Origin of Metabolism allows him to use both organic chemistry and the history of earth and life.

Jiambo Wang (PD '94, Zimmerman) is now an Assistant Professor at Peking University, PRC. He reports that he has a group of five graduate students with three of them being Ph.D. students. Also he has trained one Ph.D. and one M.S. student. This year he has published two JOC papers and one J. Chem. Soc. (Perkin) paper. He teaches Physical-Organic Chemistry and also Theoretical Organic Chemistry, and this last year got a teaching award from the university.

Drew Weber (PhD '88, Zimmerman) reports that he now is a marketing manager with DuPont in Wilmington, Delaware.

Michael Wendland (BS '95, Whitlock) is starting his fourth year of graduate work in organic chemistry at the University of Illinois with Prof. Steve Zimmerman. His research is focused on synthesizing 'cored' dendrimers.

Jeffrey A. Wesson (Ph.D. '83, Yu) has recently been appointed as a faculty member of the Nephrology Department of



*A cluster of Badger Chemists live in the Baltimore/Washington DC area. **Norman***

Schmuff (PhD '82, Trost) and **Steve Miller** (PhD '83, Whitlock) are Team Leaders in the FDA's Center for Drug Evaluation and Research (CDER). Their boss is **Chi-wan Chen** (PhD '78, Whitlock) who is a Division Director at CDER. Also at CDER is **George Lunn** (PD '75-'77, Trost), who is married to **Louise Hellwig** (PhD '78, Whitlock). Louise currently teaches chemistry at Morgan State University. Steve Miller's wife, **Alex Brown** (PhD '80, Whitlock) is on the staff at the National Institutes of Health in Bethesda.

Medical College of Wisconsin in Milwaukee.

Guosheng Wu (PD '80-'82, Zimmerman) has written saying that he and his wife Big now are permanent in the U.S. Guosheng has resigned his Professorship at Shanghai and now is Project Manager and Senior Scientist at ChemPacific, Inc in New Jersey.

Hichang Yoon (Ph.D. '91, Yu) moved recently from SKC in Korea to Eastman Kodak in Rochester.

Wentao Zhang (PhD '96, Record) holds a postdoctoral position with Dr. N. Cozzarelli at the University of California-Berkeley.

Frank Pilar sent the following observations from New Hampshire: "I was speaking with **Sandy Amell** one day about the rather large number of connections the UNH Chem department has with the Wisconsin Chem department, and it occurred to me to compile these and send them to you. Sandy received his Ph.D. in 1950 with Farrington Daniels, **Robert E. Lyle, Jr.** (a former UNH professor) received his Ph.D. in 1948 with McElvain, **Gary Weisman** received his Ph.D. with Steve Nelsen in 1976,

and **Richard P. Johnson** was a postdoc with Howard Zimmerman during 1978-79. In addition there are a number of other connections as follows: **Harold Iddles** (Dept Head from 1929 to the early 1960s) spent a semester of a sabbatical at UW in the early 50s. **Gloria Lyle** (wife of Robert Lyle) worked for WARF while her husband was a graduate student. **Farrington Daniels** was an Iddles Lecturer at UNH during the 1960s. **Ed Larsen** spent about 3 or 4 summers as a resident lecturer in our NSF Teachers' Institute. **Christopher Bauer** was a postdoc in the Water Chem lab (in the Engineering School) from 1979 to 1981 with Anders Andren and Marc Anderson. Sandy Amell believes we have sent more of our undergraduate students to the UW Chem Dept for graduate work than to any other single institution. I don't have details on any of these but I recall **Jim Foley** who got his Ph.D. with Berson

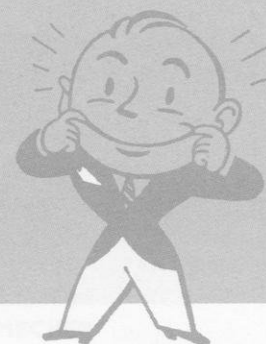
('69) and **Ron Perkins** who ran summer workshops at Madison with Shakashiri (Ron was once recognized nationally as an outstanding High School chemistry teacher from Groton, CT). And I almost forgot: I was a visiting professor in 1971-72."

Bob Lyle (PhD '49, McElvain) (below) received the Alpha Chi Sigma Kuebler Award at the 44th Conclave held in Atlanta this past August. Alpha Chi Sigma was established at the UW-Madison in 1902, and the 100th anniversary of AXΣ will be celebrated in Madison in 2002.



OUR AWARDS

The Chemistry Department was again well represented among recipients of UW awards.



Lloyd Smith has received a WARF Mid-Career Faculty research award. These prestigious \$60,000 awards are for faculty between 5 and 20 years past tenure.

Fleming Crim was among 146 people elected this year to membership in the American Academy of Arts and Sciences. Members are chosen for their contributions to science, scholarship, public affairs and the arts.

Gery Essenmacher received one of two College of Letters and Science 1998 Academic Staff and Faculty Academic Advising Awards. Awardees are chosen for exemplary advising practices and sustained contributions to advising.

Laura Kiessling and **Dan Rich** were selected as two of the ten recipients of the 1999 Arthur C. Cope Scholar Award. **Ralph Hirschmann**, a distinguished UW-Madison alumnus, was also a winner. Awardees were announced at the 216th ACS National Meeting in Boston, Mass, Aug. 23-27, and the awards will be presented at the ACS National Meeting in New Orleans in the fall of 1999. These awards recognize and encourage excellence in organic chemistry.

Cathy Middlecamp, faculty associate in chemistry and Director of the Chemistry learning Center, was selected as a Fellow of the UW-Madison Teaching Academy. She joins Professor Jim Taylor, Professor Bassam Shkhashiri and Tony Jacob in this campus organization in which faculty and instructional staff study and provide long-term recommendations on critical issues affecting teaching and learning.

Bassam Shkhashiri received the Presidential Science Initiative Award at Sacred Heart University in May. Bassam was honored for his "outstanding leadership in science education and his profound

influence on chemistry education."

Arun Yethiraj received an award from the Samuel C. Johnson Distinguished Fellowship Committee to support a graduate student in his research group.

HyukYu has been announced as the recipient of the 1998 "Kobunshi Koseki-sho" (Distinguished Service Award for promotion of polymer science) from the Society of Polymer Science, Japan. He will receive the award and deliver the award talk in May 1999, at their Annual Meeting at Kyoto, Japan.

Student Awards

The sixth annual Hoechst-Celanese Excellence Awards were presented by Susan Houliston at an awards colloquium on September 14. Award recipients presented short talks on their research. Awardees included: **Tim Firman** (BS '93, Cal Tech, working with Landis), **Tony Frutos** (BS '94, Brigham Young, working with Corn), **Jennifer Hovis** (BS '95, Oberlin, working with Hamers), **Rustem Ismagilov** (BS '94, Higher Chemical College of Russian Academy of Science, PhD '98, Nelsen), and **Zhihao Yang** (BS '90, Nanjing University, working with Yu).

Jennifer Hovis received the 1998 Nellie Yeoh Whetten Award from the American Vacuum Society. This consisted of a cash award plus travel expenses to the November 1998 AVS meeting in Baltimore.

First year grad student **Amanda Gilman** (BA '98, Albion College, working with Kiessling) received a WARF Fellowship for the 1998-99 year. These competitive awards are given to the University's top incoming graduate students.

Steve Feldgus (BS '94, U. Massachusetts, working with Landis) and **Courtney**

Thompson (BS '96, UC San Diego, working with Ediger) were selected to serve as 2 of the 18 College of Letters & Science Teaching Assistant Fellows for 1999. The Fellows will present the L&S TA Training program in August 1999. **Courtney Thompson** also received one of the first French-Felten Awards for Inspirational Teaching, awarded in October by L&S to teaching assistants who have been evaluated as particularly inspiring to their students.

Four 1998-99 three-year graduate fellowships were awarded in the department: the Lubrizol Fellowship to **Stefan Kraft** (Diploma '95, University of Heidelberg, working with Casey); the Procter and Gamble Fellowship to **Tim Griffin** (BA '94, St. Olaf, working with Smith); the Dow Fellowship to **Aaron Sanders** (BS '95, SD School of Mines, working with Reich); and the Kodak Fellowship to **Paul LePlae** (BS '96, Michigan, working with Gellman). Paul also received a Research Fellowship Grant from the Fannie and John Hertz Foundation.

The 1998 Chemistry Teaching Assistant Awards were given to **Paul Bonvallet** (BA '96, Kenyon College, working with McMahon), **Herb Fynewever** (BS '94, Calvin College, PhD '98, Yethiraj), **Steve Hoffman** (Water Chemistry), **Teri Larson** (Faculty Assistant), **Sarah Moline** (Faculty Assistant), **Ryan Parks** (BA '95, Kenyon College, working with Burstyn), **Emily Reichert** (BS '96, University of Redlands, working with Weisshaar), and **Courtney Thompson**. These awards are given each year to teaching assistants and faculty assistants who are selected by students and faculty as outstanding teachers. The awards were presented at the Hoechst-Celanese Award Symposium in September.

(continued on page 28...)





NEW BADGER CHEMISTS

PHD

May 1998

BRIAN C AUSTAD (Burke)

"The Diastereoselective Synthesis of 2,3-Dialkyltetrahydrofuran-4-ols Via Zirconocene-Mediated Ring Contractions and the Expedient Synthesis of C(37)-C(54) of Halichondrin B"

AMY B DEAN (Kiessling)

"Investigation of Rna-Protein Interactions Using Synthetically Prepared Modified Oligonucleotides"

HONGBING LIU (Hamers)

"Surface Chemistry of Unsaturated Organic Molecules On Si(001) Surfaces"

WILLIAM J SANDERS (Kiessling)

"Exploring the Origins of L-Selectin Specificity: Synthesis and Biological Evaluation of Mono0 and Multivalent L-Selectin Ligands"

HEATHER L SCHENCK (Gellman)

"Design of Beta-Sheet Peptides"

August 1998

DANIEL H APPELLA (Gellman)

"Synthesis and Characterization of Helical Beta-Peptides"

CHRISTOPHER J BEHME (Burke)

"I. Synthesis of the Tetrahydropyran Subunit of Zincophorin"
"II. Efforts Towards the Total Syntheses of Pseudopterolid"

JOHN T BRADY (Casey)

"Kinetic and Mechanistic Investigations of Rhenium Alkyne Complexes"

JOEL A DOPKE (Gaines)

"Rational Enlargement of the Decaborane(14) and octaborane(22) Cluster Systems, and Cluster-Supported Ligand Synthesis"

NANCY CARTER DOPKE (Treichel)

"Matrix-Assisted Laser Desorption/Ionization Mass Spectral Studies On Transition Metal and Main Group Atom Clusters"

XIAODONG FAN (Rich)

"The Design and Synthesis of Didemnaketel A and B Analogs"

RUSTEM F ISMAGILOV (Nelsen)

"Adiabatic Electron Transfer: Theory and Experiment"

JEFFREY J LETOURNEAU (Burke)

"The Total Synthesis of (+)-Breynolide"

JULIE K LORENZ (Ellis)

"Use of Cadmium Selenide Photoluminescence in the Detection of Dialkyl Chalcogenides and the Study of Semiconductor/Surfactant Interfaces"

JINGWEN MA (Yu)

"Molecular Structure and Diffusion Study of Monolayers at the Air/Water Interface"

MICHELLE MANNING (Nathanson)

"Atomic Beam Scattering Studies of Liquid Gallium, Indium, and Bismuth Surfaces"

KRISTY L MARDIS (Sibert)

"Studies of Rotational-Vibrational Coupling in Coordinate Embedding and the Methane Association Reaction and Potential Energy Surface Refinement Techniques"

KARIN K MAXSON (Whitlock)

"Design and Development of Silicon Linker Technology and Its Use in Solid Phase Biomimetic Polyene Cyclizations"

EVELYN J LIN PAULSEN (Casey)

"Electron Withdrawing Substituents On Equatorial and Apical Phosphines Have opposite Effects On the Regioselectivity of Rhodium Catalyzed Hydroformylation"

LOUISE L STRACENER (McMahon)

"Computational and Experimental Investigations of Geometrically Constrained Carbenes"

HIEU Q TRAN (Nelsen)

"Synthesis and Study of Substituted Sesquibicyclic Hydrazines and Aromatic Diamines"

ZHIHAO YANG (Yu)

"Structure and Property Relations of Macromolecular Self-Assemblies at Interfaces"

December 1998

MELISSA D ANTMAN (Nathanson)

"Collisions and Reactions of Inert and Organic Gases With Dilute Supercooled Sulfuric Acid"



HENRY LAINE BERGHOUT (Crim)

"Spectroscopy and Dissociation Dynamics of Electronically Excited Isocyanic Acid By Vibrationally Mediated Photodissociation"

STEVEN CHUNG (Casey)

"Studies of Eta-3 Propargyl Complexes of Rhenium and Platinum"

BARRETT E EICHLER (West)

"Novel Group 14 1-Heteroallenes"

HERB R FYNEWEVER (Yethiraj)

"Phase Behavior and Local Structure of Liquid Crystalline Polymers"

EVA J GORDON (Kiessling)

"Exploring L-Selectin Function Using Glycoprotein-Inspired Materials"

ALBERT W KRUGER (Vedejs)

"Studies in the Stoichiometric and Catalytic Enantioselective Protonation of Enolates & the Allylic Directing Effect of Carboxamides in Osmylations and Hydroborations"

ROBERT J LASCOLA (Wright)

"Nonlinear Optical Properties of Neutral and Anionic Fullerenes"

D TYLER MC QUADE (Gellman)

"Further Studies of 1,6 Methano[10] Annulene-Derived Contrafacial Amphiphiles and Synthesis of Tripod Detergents for Membrane Protein Solubilization and Crystallization"

AMY S RIPKA (Rich)

"Development of Type-I and Type-III Peptidomimetics for the Aspartic Protease R. Chinensis Pepsin"

DAVID E THOMPSON (Wright)

"Measuring and Modeling the Contribution of the Complex Refractive Index to Infrared Four-Wave Mixing Lineshapes in Mixtures of Fully Deuterated Benzene and One, Eight-Nonadiyne"

NGUYET T TRAN (Dahl)

"New High-Nuclearity Homometallic/Heterometallic Palladium and Gold-Nickel Carbonyl Clusters"

EPHRAIM WOODS III (Crim)

"The Vibrational State Controlled Reaction of Chlorine Atoms With Isocyanic Acid"

JIHONG YANG (Gellman)

"Evaluation of Hydrogen Bonding Patterns in Small Molecules"

SUNG SOO YI (Weisshaar)

"Effects of Angular Momentum Conservation on Reactions of Cobalt and Nickel Cations With Alkanes: Experiment and Statistical Theory"

**May 1998****SUZANNE M BELAL (McMahon)****JEFFREY L BROWN (Nelsen)****RYAN L FIMMEN (McMahon)****MICHAEL P GORMAN (Crim)****HILLARY J PAUL (Corn)****RACHEL A SAWYER (Landis)****JAMES P SCHNEIDER (Landis)****August 1998****WENSHENG CHEN (Zimmerman)****RUBEN DELGADO (Crim)****YVONNE YIP (Rich)****JIANMING ZHANG (Dahl)****December 1998****LEZA MARIE LUCHETTA****JEANNE MARIE RUMSEY****PETER LEONHARD****May 1998****JESSIE LEAH BIRRENKOTT****GEORGE NATHAN CAUCUTT**

(With Honors)

JEFFREY THOMAS DEIGNAN**RYAN CHRISTIAN DRESEN****AMANDA RAE DRYER****MARY MONICA ENGLER**

(With Honors)

JESSE MICHAEL GRAY

(With Honors)

HOLLY JEAN GRIECO**PAULA INDRAWATI GUNAWAN****AMY CHRISTINE HART****KYLE A HECKER****JEREMY ALON KAHN****JEREMY JACOB KODANKO****SANG-GOO AXELROD LEE****PAUL SHELDON LILLYROOT****SUSAN GWEN MARGONI****ANDREW PAUL MONGIN****MARGARET ELLEN OCHS**

(With Honors)

REBECCA LYNN PRATH**WILLIAM MICHAEL RITSCH****LUIS ALFONSO SAUCEDO****GARY ROBERT SINKLER****STEPHANIE KAY SPILKER****HEATHER GWEN STENMARK****MARK STEPHEN VANDER LOOP****JOHN CHARLES VAN RENS****CHRISTOPHER NEIL YENTER****DAVID JAMES ZANDE**

(With Honors)

August 1998**DAVID FOSTER FLYNN****BURTON ROBINSON PRESTON**

(With Honors)

DAENA ELLEN RAMM**ERIC JOHN WAHOSKE****December 1998****DANA LYNN GEISER****TRISTAN MARK KYSELY****MICHAEL JOHN LA FOND****HUY TRI LAM****JEREMIAH EDWARD MILLER****RAPHAEL M MUNZ****ERIC ALLEN OLIVER****SHANE DANIEL OLUND****WILLIAM JOHN PALMER****MELISSA KATHLEEN WEBSTER**



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DR. RUSSELL W. PETERSON

(Editor's Note: In the Fall of 1998 I saw an advertisement for the release of Dr. Peterson's upcoming memoir. As a longtime member of the National Audubon Society, I was surprised to find that Dr. Peterson was also a Badger Chemist. Since I am somewhat shameless when it comes to soliciting input for the Badger Chemist, I invited him to submit the following article.)

Dear Matt,

Thank you for inviting me to contribute a short article to the 1999 *Badger Chemist*. Your target date for distributing *Badger Chemist* coincides with the April 1999 date for releasing my memoir, *Rebel with a Conscience*, being published by Associated University Presses. It covers in some detail my eight rewarding years gaining my B.S. (1934) and Ph.D. (1938) degrees in chemistry at the University of Wisconsin and my continuing involvement with my alma mater to this date.

As the seventh son of an immigrant Swedish baker, I was the first in my family to go to high school. There my chemistry teacher turned me on to the exciting world of chemistry. Graduating in 1934 in the midst of the Great Depression with my father sick with cancer and my family on welfare, I hitchhiked from my home town of Portage, Wisconsin, to Madison to enroll in chemistry. Having spent my total savings of \$37 and having failed to find a job, I visited my adviser, Chemistry Professor Villiers Meloche, to tell him I had to quit school. With the help of his wife-to-be, who ran the University's Employment Office, he found me two jobs. My career as a student was assured. Eight years later I left with my Ph.D., a wife and two sons.

For 26 years I worked for the DuPont Company, primarily managing the developing and launching of new business ventures. During the last ten of those years I became immersed evenings and weekends in citizen action. Among other things, I led 6,000 Delawareans in reforming our prison system. This led to repeated attempts by political leaders to convince me to run for office. In 1968 I did so and became the first Ph.D. scientist to become governor of a state.

Over two dozen Ph.D. chemists and their spouses, half of whom graduated from the University of Wisconsin, markedly aided my election. These included **Al Pavlic** (PhD '42, Adkins), whom I met as a freshman at Wisconsin while we washed lab dishes in the basement of the Chemistry building, and **Paul Bente** (PhD '42, Walton) who shared an apartment with my wife and me while we were in graduate school.

After my term as governor I chaired the President's Council on Environmental Quality and then became director of the Office of Technology Assessment of the U.S. Congress before becoming president of the National Audubon Society. Later I became president of two international conservation organizations and vice president of a third. These various assignments permitted me to operate at the cutting edge of the environmental movement for thirty years, an experience which has brought me great job satisfaction.

Today I serve on the Board of Visitors of the University of Wisconsin's Institute for Environmental Studies and am deeply involved in the rejuvenation of the riverfront in Wilmington, Delaware.

I look back with great respect and appreciation for my alma mater's key role in setting me on the path to realizing the American dream. I have found my training in the scientific method to have great utility in the business, environmental, political and social arenas.

My book, *Rebel with a Conscience*, is the first memoir to be accompanied by a CDROM. Having written the book with a pen and pad, I decided to bring some modern technology to bear. The multimedia CD-ROM permits viewers interested in careers in environmentalism, business, science and technology, politics, or criminal justice to select pathways through the book specifically oriented to these fields. It supplements the book with photos, videos, narration, interviews and music.

Here's to all Badger chemists!

Sincerely,

Russell W. Peterson



IN MEMORIAM

1998-1999

JAMES WILLIAM BLACKBOURN

(BA '71) Died August 4, 1998. Mr. Blackbourn also received an MS in Electrical Engineering from UW in 1987.

LOUIS CLYDE CADY

(PhD '34, Williams) Dr. Cady retired as a dean at the graduate school of the University of Idaho, where he had earned his BS and MS degrees.

JAMES ELLIOT CARNAHAN

(BS '42, MS '44, PhD '46, Adkins) Died March 25, 1996. Dr. Carnahan retired from DuPont in 1985, then continued to work as an instructor with the Life Long Learning program at the University of Delaware.

WILLIAM O. CASTER

(MS '44, Hall) Died in April 1994. Dr. Caster received his PhD from the University of Minnesota in 1948, and had been a professor at the University of Georgia in Athens until 1985.

CARL J. CHRISTENSEN

(MS '25) Died June 24, 1995. Dr. Christensen received a PhD from Berkeley in 1929, worked at Bell Labs from 1929 until 1946, then was at the Utah College of Mines and Earth Sciences, where he retired as Dean in 1971.

DORR H. ETZLER

(BS '35, Meloche) Died March 1995. Dr. Etzler received a PhD from Berkeley in 1938.

WILLIAM FLOYD HOLBROOK

(BS '20) Died July 8, 1997 at 99. Mr. Holbrook retired in 1962 after 42 years as a chemist with the U.S. Bureau of Mines.

JOEL BENDRICK HUTH

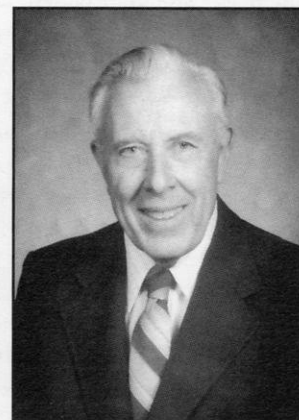
(BS '82) Died August 21, 1998. Dr. Huth received his DDS from the University of Iowa in 1988, and was active in youth programs in Middleton and the Madison area.

PROF. ZYGMUNT LASOCKI

(Visiting Prof '87, West) Died Dec. 5, 1993. Professor Lasocki, world renowned organosilicon chemist, passed away on December 5, 1993, at the age of 71. He was known for his research achievements in the areas of silicon-based polymers, polysiloxanes and polysilazanes in particular. He was the first to perform, in the late '50s and '60s, comprehensive kinetic investigations of the fundamental process in the polysiloxane synthesis, the polycondensation of diorganosilane diols. As a part of this research, he synthesized many new silane diols, silanetriols, their precursors and oligomeric products. Prof. Lasocki also contributed to the chemistry of silazane polymers and copolymers synthesized by polycondensation and polyaddition routes. A considerable part of Lasocki's research was devoted to the process of silylation. Professor Lasocki was always engaged in teaching, at both the graduate and post graduate levels. He lectured at universities and institutes of the Polish Academy of Sciences in Lodz, Warsaw, Poznan and Silesia. Professor Lasocki was a very active chemist both in Poland and abroad. He often lectured as a visiting professor and was a plenary lecturer and a member of advisory boards of international conferences. He was the Chairman of the Scientific Committee of the Xth IUPAC Symposium on Organosilicon Chemistry in Poznan in August 1993.

CARL MANDT LUNDE

(BS '32, MS '36) Died November 15, 1995. Following his graduation, Mr. Lundé worked for 36 years at Lever Brothers as a chemist.

THERALD MOELLER

Therald Moeller, past Chairman of the Department of Chemistry at Arizona State University, died November 24, 1997 at the age of 84. Moeller graduated from Oregon State College in 1934 in chemical engineering, and in 1938 he received the Ph.D. in inorganic and physical chemistry from the University of Wisconsin. He was an Instructor at Michigan State College from 1938-40, then moved to the University of Illinois where he became an internationally recognized authority on the chemistry of the rare earth elements, publishing 94 research papers and books in this area alone. Moeller moved to Arizona State University in 1969 as Chairman of the Department of Chemistry and served in this capacity until 1975. He retired from ASU as Professor Emeritus in 1983. During the 45 years Professor Moeller was active in teaching and research,





IN MEMORIAM



(... continued from page 27)

he guided the laboratory research of 99 students and postdocs in inorganic chemistry. 39 of these are now professors at universities throughout the world. Moeller's list of publications numbers 281, including 22 books and laboratory manuals authored or edited by him. One of his texts, "Inorganic Chemistry, an Advanced Text," was the "Bible" of inorganic chemistry for decades. With this text, universities began to teach advanced inorganic chemistry, and this had an enormous influence on the development of this major field of chemistry in the U.S. and throughout the world. Professor Moeller was cofounder, along with University of Illinois Professor John Bailar, of the American Chemical Society Division of Inorganic Chemistry in 1959. Therald Moeller was an outstanding lecturer, and recognition of his exceptional teaching ability was noted in 1981 when he was awarded the ASU Department of Chemistry Award for Distinction in Undergraduate Teaching. In 1983 Moeller received the Alumni Association's Distinguished Teacher Award as best instructor at Arizona State University. Therald Moeller is remembered by his students and colleagues for his winning personality, smile and sense of humor, his interest in them as individuals, his sympathy for their problems, his demanding their use of correct English in all their writing, and his open door policy even as Department Chairman. The Therald Moeller Award for Outstanding Scholastic Achievement and Professional Promise in Chemistry has been established at ASU, and the *Therald Moeller Chemistry Endowment Fund, c/o University of Illinois Foundation, 1305 W. Green St., Urbana, IL 61801*, has been established at the University of Illinois. Gifts in memory of Professor Moeller will be accepted by both organizations.

(Edited from a memorial written by Dr. R. S. Jurvet, Professor of Chemistry Emeritus, ASU.)

MARGARET NICHOLS MUTIMER

(BS '53) Died August 11, 1996. She enjoyed a lifetime of involvement in science, sharing her enthusiasm with thousands of students as a high school chemistry and physics teacher. From 1954-59 she was a research chemist at Squibb.

MAYNETTE VERNSTEN NEUNDORF

(MS '48, Adkins) Died in March, 1998. Ms. Neundorf worked for many years at Abbott Labs Chicago.

ROBERT GUY PARRISH

(BS '49) Died January 23, 1993. After receiving a PhD from Duke in 1952, Dr. Parrish was a research fellow at Cambridge, London and Ann Arbor, then worked at DuPont.

PAUL SWITHIN PINKNEY

(BS '34) Died January 30, 1998. Dr. Pinkney received a PhD from the University of Illinois in 1937, then went on to a long career at DuPont, from which he retired in 1974.

ROBERT L. SPAULDING JR.

(PhD '44, Williams) Died August 13, 1997 at 78. Dr. Spaulding worked at Los Alamos National Lab until his retirement in 1981.

FRED LOWELL TAYLOR

(BS '30) Died August 25, 1996. Dr. Taylor received a PhD from the University of Minnesota in 1935.

ADELAIDE E. WILLARD

Died October 26, 1998 at 85. Mrs. Willard married John Willard in 1937, and moved with him to Madison, where he joined the faculty of the University of Wisconsin that year. John Willard died in 1996. Adelaide's life was devoted to her family and to community service. Among her volunteer positions, she served as chairman of the Madison Friends of International Students, as chairman of the Dane County Homecrafters, and as a worker and secre-

(... continued from page 21)

Mark Reynolds (BA '93, Grinnell, working with Burstyn Burstyn) was awarded the Belle Crowe Fellowship in Fall 1998.

Tami Raguse (BS '97, UW-Eau Claire, working with Gellman) was awarded a three-year NSF Fellowship starting during the 1998-99 year. Tami was a WARF Fellow during 1997-98.

Dan Appella (PhD '98, Gellman) received the Sigma Xi research award before he graduated in summer 1998.

Undergraduate scholarships were awarded in 1998-99 to **Christopher Belmas, Joel Eaves, Richard Grygiel, Jeremiah Miller, Eric Strieter, Phoebe Arnold, Margot Paulick, Elizabeth Mengelt, Mariah Quinn, Victor Chen, Kui Chan, Ryan Huddleston, Derrick Juengst, Gerald Matchett, Scott Magee, Ryan Monfeli, and Raymond Tang.**

Undergraduate receiving Hilldale Research Awards of \$3,000 this year were **Joel Eaves** (working with Crim) and **Mariah Quinn** (working with Gellman). The awards are made possible by grants from the Hilldale Foundation and the Wisconsin State Legislature.

Jeremiah Miller (working with Casey) was among ten seniors honored at the University's Sesqui-centennial Undergraduate Research Symposium held Feb 10, 1999.

tary of the board of the Attic Angels Association. In addition she served as a source of good counsel, encouragement and inspiration to her many friends and relatives. She provided legendary meals and warm hospitality for untold numbers of graduate students and their families, foreign visitors and faculty recruits. She was a long time member of the First Congregational Church.







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