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Badger

Chemist

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Issue for
1996
No.
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THE NEWSLETTER OF
THE UNIVERSITY OF WISCONSIN-MADISON

CHEMISTRY DEPARTMENT

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Paul M. Treichel, Jr.
Editor

Aaron Ihde, PhD - *Editor Emeritus*

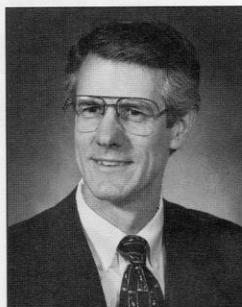
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FROM THE CHAIRMAN



This past year has seen several changes in the Department. A notable one is Paul Treichel's stepping down after nine years of accomplished leadership. Paul is the longest serving chair since J. Howard Mathews, who led the Department for 33 years. During nine years with Paul at the helm, we added impressive new faculty and set the stage for success in the next millennium. The faculty expressed their appreciation of Paul's years of service in a resolution that they presented as a framed certificate:

The Department of Chemistry recognizes the exemplary service, dedication and performance of Paul M. Treichel, Jr. throughout his nine-year tenure as chair. His leadership during a challenging period in the Department's history, especially with respect to development and support of the many younger faculty who joined the Department during this time, has earned the gratitude and respect of all.

The Department again distinguished itself in the competition for University awards. Sam Gellman won a Romnes Faculty Fellowship, the 12th among active faculty, and Hans Reich won one of the new WARF Mid-Career Awards, the second one to come to the Department in the two years that they have existed.

As we look to the near and long term future, we see an addition to our building as a crucial component of our plans. As an article in this issue describes, we are moving forward with growing optimism. The addition promises to add first class space for the ever more diverse activities that our scholarship demands.

Challenges bring opportunities, and there are several on the horizon for our Department. The many uncertainties about support of academic research and the prospect of reduced resources from the State are two of the most important issues we face. Our traditions of creativity in education and in research give us confidence as we work on building and maintaining excellence in demanding times. This issue of the *Badger Chemist* gives you more details about the many activities and accomplishments of the Department, and we are eager to hear from you with your comments, suggestions, and questions.

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Current Chemistry NEWS

Departures

DAN CORNWELL retired at the end of the spring semester, 1995, and shortly thereafter was designated as an Emeritus Professor. He had served the UW-Madison for 43 years, being first appointed as an Instructor in 1952 and rising through the ranks to Professor in 1962. During his faculty career, Dan directed 24 doctoral students, 7 masters students, and two undergraduates, publishing 21 papers on research in his labs. He taught undergraduate physical chemistry, general chemistry, and several graduate courses. Physical chemistry laboratory was a particularly important part of his teaching and the excellence of this laboratory grew under his leadership and attention. Dan coauthored two editions of the laboratory text, *Experimental Physical Chemistry*.

Dan participated broadly in the department. He chaired the Physical Chemistry Division for 15 years, leading the division as it grew and diversified. Dan supervised the Electronic Shop for 20 years, guiding its development as a first-rate facility in support of the department's research program. He was chairman of the new building committee for the past 14 years, until stepping down about a year ago. He contributed as a student advisor at both the graduate level and the undergraduate level through the L&S Faculty Advising Service and also served on the Appeals Committee for almost a decade.

We are sorry to report the departure of Associate Professor **Laura Lerner**. At the beginning of the spring semester (January, 1995) Laura moved to California with her family to take a senior scientist position at Genentech. Formally on leave from the department during 1995, she has now resigned her faculty position. Laura sent the following comments:

"I am a scientist (the official title) at Genentech, supervising a small group responsible for characterization of glycoproteins and

for developing new methods of characterization. So after successfully passing (I think) as a physical chemist, I am now converting to analytical chemistry! David is a senior staff scientist at a small start-up company, CIPHERGEN, in Palo Alto which is developing MALDI-TOF instrumentation for biological applications. Gabriel (12/27/90) and Camille (10/05/94) both attend Genentech's daycare center, about two miles from where I work. David and I miss Madison and our friends there very much. We are gradually assimilating here, but I don't think I will ever love the Bay Area the way I loved living in Madison. Nor will I be able to replace the sense of camaraderie and purpose that prevails in the Chemistry Department. I would like to thank all the people there who made my years in the department such a positive experience."

Promotions

Sam Gellman was promoted to full Professor in June. This promotion, coming two years after the tenure decision, recognized Sam's growth as a faculty member. His research on the thermodynamics of intramolecular hydrogen bonding in amides has been amplified and refined and he has continued work on polysulfoxide/phosphine oxide receptors and hydrophobic interactions. He has a number of major new initiatives underway including design of a peptide that can switch conformation by a redox process. Sam teaches in the 343/344/345 honors sequence, which he helped set up several years ago and developed during the year.

Lloyd Smith's promotion to professor occurred during 1995. Lloyd has made an outstanding record here in work involving genetic sequencing methodology. He has a large research group, a lengthy publication record, 12 patents, a PYI and Romnes award, membership on DOE and NIH advisory

panels, and he serves on four editorial boards. His work has received extensive national media coverage in *Time*, *Newsweek*, *US News and World Report*, and *C & EN*.



Joe L. March

Joe L. March is the new General Chemistry Laboratory Director. He graduated from the University of Texas at Austin where he earned his doctorate with J. J. Lagowski in 1995. At the University of Texas,

he investigated the chemistry of fullerenes and prepared a "Teaching Assistants Staff Manual" for the introductory course there. Joe had to get started right away. Summer session was already underway, and we were in the middle of a laboratory modernization project, which involved remodeling of room 1329 into a modern laboratory capable of supporting cooperative group work by general chemistry students and consistent with the ideas of the New Traditions curriculum development project. There was some chaos as remodeling was only completed half way though the fall semester, but it is clear that both students and TAs really like this new facility. As students move into the new lab, they will encounter new approaches to the introductory chemical experience. Joe has incorporated group experiences and computers into the first semester laboratories. He has directed the development of computerized preparatory modules that can be viewed with an internet browser such as *Netscape*. These modules will be available on the internet for students to view text, still pictures, and movies describing laboratory techniques before they come to the laboratory.

Faculty and Staff News

Fleming Crim was named as a fellow of the American Association for the Advancement of Science. He is also the new department chair, taking over the reins in midsummer.

Chuck Casey gave the Paul Gassman Lecture Series at the U. of Minnesota in September 1995 and the A. H. Blatt Seminar at Florida Institute of Technology in November 1995.

Larry Dahl traveled through Kentucky and Tennessee on an ACS lecture tour in March. In September, he attended the symposium honoring Lord Jack Lewis in Cambridge. He presented lectures at the Robert A. Welch Foundation's 39th conference in October and then was the 5th Basolo Lecturer at Northwestern U. in November. He and was an invited lecturer in two symposia at the Anaheim ACS meeting in spring and the PACIFICHEM meeting in Hawaii in December.

Mark Ediger traveled in Japan and presented talks at a polymer science conference and at Kyoto Institute of Technology. He also was an invited speaker at the Gordon Research Conference on liquids, and at Duke, North Carolina, Northwestern, and Purdue. Starting in 1995, Mark is a member of the editorial advisory boards of *Macromolecules* and the *Journal of Polymer Science*.

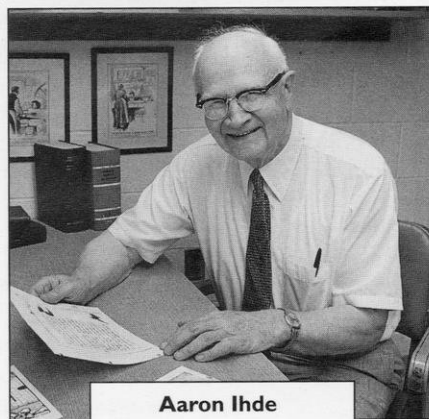
Art Ellis served as chair of the Inorganic Division of the ACS during the past year. He is part of the management team of the NSF funded National Institute for Science Education (NICE) based in Madison.

Don Gaines was one of two invited lecturers at the 60th birthday party for **Peter Paetzold** in Aachen, Germany in March. Following that he went on a lecture tour that took him to Munich, Goettingen, Essen, Heidelberg, and Stuttgart. During the summer, he visited with colleagues **Tom Fehlner** (Notre Dame) and **John Morris** (Strathclyde) in the Scottish highlands.

Sam Gellman spoke at the Bioorganic and Physical Organic Gordon Conferences during the summer, and at a conference in Nunfeld, Germany, during the spring of 1995.

Bob Hamers was the Program Chairman for the 1995 International Conference on Scanning Tunneling Microscopy and Related Techniques, held in Snowmass, CO in July; the conference was attended by more than 600 people. Bob is also the chief editor for the proceedings of the conference, which will be published in the *Journal of Vacuum Sci-*

ence and Technology in March '96. He was the "Keynote Speaker" for the Northeast Wisconsin High School Science Teacher's Symposium in Green Bay, where he gave a talk on "Imaging Atoms and Bonds with the STM" to approximately 100 high school science teachers. Bob was also selected by Union Carbide Corp. to participate in their Innovation Recognition program, which includes a \$10,000 unrestricted research grant.



Aaron Ihde

Aaron Ihde has been retired since 1980 but still comes in frequently to his office on the 9th floor. Since the death of his wife in 1988, he spends a great deal of his summer doing volunteer work at the University's Arboretum woods, removing buckthorn and honeysuckle. These trees and shrubs were brought to this country from Europe over a century ago and have taken over many American forests. His daughter Gretchen has been Manager of the Florida West Coast Symphony in Sarasota since 1980, and his son John teaches chemistry and art at Wausau West High School. Last June, the ACS honor John as the Wisconsin Distinguished Teacher of Chemistry.

Laura Kiessling spoke at two Gordon Research Conferences (on Bioorganic and Heterocyclic Compounds). She was also a speaker at the Anaheim ACS meeting, at the Symposium on the Physical Chemistry of Proteins, and at a symposium on Microbial Adhesion to Eukarotic Cells in Urbana, IL. Laura has received an American Cancer Society Junior Faculty Research Award. She was also a member of the group of 6 faculty in biochemistry and chemistry who obtained NSF funding to establish a Biophysics Instrumentation Facility on campus.

Bob McMahon spoke at the Winter Meeting of the Inter-American Photochemical Society in January, 1995, and at the Polish-American Workshop on Reactive Intermediates in Zakopane, Poland in August 1995.

Bob is also learning far more than he cares to know about the architectural design and engineering of chemistry buildings in his new role as chair of the Chemistry Building Committee. Bob, with **Phil Certain** and **Fleming Crim**, visited the 3M Center in St. Paul during October, 1995, where they met with 3M officials and hosted a reception for Wisconsin alumni at 3M.

During 1994-5, **Cathy Middlecamp**, served as chair the Academic Staff Executive Committee. The ASEC guides the Academic Staff Assembly, whose function is similar to that of the University Committee, which is the executive committee for the Faculty Senate. Cathy, who has been Director of the Chemistry Learning Center since 1988, indicated that significant issues before the ASEC included means of recognizing exceptional performance of academic staff, committee service by academic staff, and efforts to support ongoing campus initiatives.

John's Moore's travels included presenting a plenary lecture at the Seventh Journées Methodes Informatiques Enseignement Chimie in Dijon, France, where he had the chance to renew acquaintance with collaborators **Daniel Cabrol**, **Jean-Pierre Rabine**, and **Robert Luft** of the Université de Nice as well as sample choice Burgundian food and wine. Invited colloquia were presented at Northwestern U. and Bradley U., and a two-day workshop for Connecticut high school teachers was given at Sacred Heart U. He also presented several invited papers at the two ACS National Meetings in Anaheim and Chicago. John participates in ACS governance as a consultant to the Society Committee on Education and as Chair-Elect of the ACS Division of Chemical Education. He also serves on advisory boards for two curriculum development projects: the ChemLinks consortium centered at Beloit College and an integrated curriculum being developed by Illinois Wesleyan U.

Steve Nelsen served as chair of the 1995 Gordon Conference on Free Radical Chemistry. Wisconsin was well represented there. Speakers included **Silas Blackstock** (Ph.D. '85, Nelsen; Vanderbilt), **Tim Clark** (Visiting Professor, '87 and '91), **Craig Merlic** (Ph.D. '88, Trost; UCLA), **Perry Frey** (UW Enzyme Institute faculty member). Three of the poster session papers chosen for oral presentations were by Wisconsin students **Rebecca Breslau** (Ph.D. '89; UC Santa Cruz), **Charles Grissom** (Ph.D. '85; Utah), and **Toshikazu Hirao** (Ph.D. '85; Osaka U.). **Hiizu Iwamura** (PD '68, Zimmerman; Kyushu) was a discussion leader. Steve was also one of the lecturers at

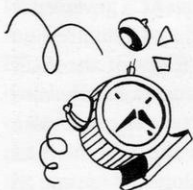
the Polish-American Workshop on Reactive Intermediates in August, in Zakopane, Poland.

Hans Reich was on a lecture tour in Europe in June-July, with stops in Marburg, Goettingen, Hamburg, Paderborn, Namur (Belgium), and Riga (Latvia). Then, in August, he gave plenary lecture at the IV'th International Symposium on Carbanion Chemistry held in Ft. Collins, Colorado. The visit to Latvia was his first. He had been hearing about Latvia from Ieva for 25 years, and the visit was especially interesting.

Jim Skinner gave the Davidson Lecture at the University of Kansas in spring. He taught general chemistry (Chemistry 103) during the spring semester, continuing departmental tradition of excellence in teaching at the introductory level. (Jim said that "he had fun...")

Paul Treichel is a coauthor with Professor **Jack Kotz** of SUNY-Oneonta of the general chemistry text, "Chemistry and Chemical Reactivity", third edition, published by Saunders Publishers.

Paul also spent some time in Okayama, Japan from January to mid-March, as a visiting professor sponsored by the Japanese Ministry of Science and Culture. He gave seminars at Okayama and several other universities on organometallic chemistry and the US educational reform activities, while **Isabel Treichel** tutored students at Okayama U. in English. They survived the earthquake (60 miles away) reporting that it felt like a freight train going through their bedroom at 5:45 am., then had a chance to witness close hand the recovery efforts that followed. As reported elsewhere in this BC, Paul returned to faculty status after 9 years as department chair.



Bob West did lots of traveling during 1995. A university funded sabbatical leave in the spring gave him the opportunity to spend a month in Japan at Toyohashi U. as visiting professor. His host was Professor Elji Osawa (PD '66 - '67). Toyohashi is the headquarters of fullerene chemistry in Japan, and this is an important facet of Bob's current research. Later Bob went to New Zealand for a lecture tour, then he spent three weeks at Ben Gurion U. in Be'er sheva Israel. During the summer and fall Bob made brief trips to Germany, Japan, and Korea to participate in meetings. The high point of the year for Bob was his trip to Romania in May where he received an honorary Doctor of Science

Degree from the Technical University of Iasi.

Bob frequently travels in the US by private plane. He extended his aeronautic activities to a new level last year, making his first ever parachute jump.

Howard Zimmerman organized symposia on photochemistry for both the Chicago ACS meeting and PACIFICHEM 95. The latter had 34 speakers, 14 from the U.S., six from Germany and Canada, one from France and Korea. Participants in both sessions included many of his former students and postdocs. Attending PACIFICHEM 95 were: **Richard Bunce** (Oklahoma State), **Stevens Fleming** (Brigham Young), **Richard Givens** (Kansas), **Richard Johnson** (New Hampshire), **David Schuster** (NYU), **Laren Tolbert** (Georgia Tech.), **Dietrich Dopp** (Duisburg, Germany), **Heinz Durr** (Saarbrücken, Germany), **Wolfgang Eberbach** (Freiburg, Germany), **Hiizi Iwamura** (Kyushu, Japan), **Christopher Bender** (Lethbridge, Canada), and **Jerry Scheffer** (U. BC, Canada).

OTHER NEWS

Djerassi Awarded Honorary Degree

Stanford University Chemistry Professor Carl Djerassi (Ph.D. '45,) received an honorary degree in the commencement ceremonies at the Fieldhouse on May 19. Professor Djerassi's research on organic synthesis of steroids led to the development of the first birth control pill. He has many previous honors to his credit including the Baekeland and Priestley Medals of the ACS, the First Wolf Prize from Israel, and the Perkins Medal from the Royal Society of Chemistry.

J. Chem. Ed. Coming to Madison

John Moore was named the seventh Editor of the *Journal of Chemical Education* after a lengthy selection process that ran from 1994 across most of 1995. He will take the place of J. J. Lagowski, of the U. of Texas-Austin. John is in the process of moving journal offices from its current home at Austin to Madison.

The *Journal of Chemical Education*, was founded in 1924 by Neil Gordon (the Neil Gordon for whom the Conferences are named.) It is published entirely by the Division of Chemical Education of the ACS. The editor is responsible for all aspects of its pro-

duction, from receipt and review of manuscripts through editing and desktop composition to preparation of computer disks that Mack Publishing converts into printing plates. The July, 1996 issue of the *Journal* will be the first issue published from Madison, and so the transition will be a rapid one: hiring staff, purchasing equipment, and outfitting Journal House, space at 209 N. Brooks Street allocated to the Journal by the university. The Brooks Street address will then serve as headquarters for both the *Journal* and *JCE: Software*. The *Journal* has been published at the University of Texas at Austin for the past 16 years; *JCE: Software*, which John founded in 1988, has been published from UW-Madison since 1989.

Undergraduate Scholarships

The article by Sallie Fisher on the Martha Gundhild Week Scholarship brought responses from Florida, Wisconsin, and Pennsylvania. Marcella Bohren Chretien (BS '29), was a Weeks' scholar for two years. Jean Linton, 1943 scholarship recipient, wrote from Adell, WI, and Cynthia Randall Albright (BS '78) responded from Philadelphia. Former Week Scholars may refer back to last year's article on this scholarship fund. We would welcome hearing from other scholarship recipients.

The Chemistry Department has three undergraduate scholarship funds with longstanding traditions. As reported in BC #39, the Week Scholarship dates back to 1923.

The Fischer Scholarship was set up through a bequest of Prof. Richard Fischer, at the time of his death in 1944. Helfaer Scholarships have been awarded annually since 1967. This funding comes from a bequest to the university that also supports Helfaer professorships in the department. In addition, a fourth scholarship fund, the Margaret McLean Bender Scholarship, has recently been established; the first award will be made in June, 1996.

The Department also honors the student with the most outstanding undergraduate research project with the Daniel Sherk Award.

Two additional scholarships are available to either undergraduates or graduates. These are the Norman Barwasser Scholarship set up through a bequest of Dr. Norman C. Barwasser of Moline IL, in 1978, and the Donald Brouse Memorial Scholarship, set up in 1990. The Belle Crowe Fellowship was set up with the provision that the principle be allowed to grow until totaling \$20,000, then the earnings would be used. The Samuel Charles Slifkin Award goes annually to an outstanding graduate student in inorganic, organic, or organometallic chemistry.

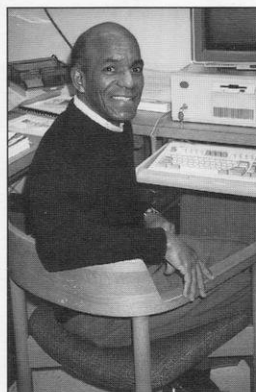
NEW TRADITIONS

WE THOUGHT YOU'D LIKE TO KNOW of the results of two of the early initiatives of the NT project, both of which are so striking as to merit reporting now. In the spring semester of 1995, Professors John Wright and Claude Woods collaborated to conduct an experiment of student learning in Chemistry 110 by comparing a student-focused active-learning (SFAL) setting with a traditional lecture setting. This course is a large, one semester introductory analytical chemistry course that typically enrolls 90 students per lecture section. The course consists of two 4-hour laboratories and 3 lectures each week. John Wright restructured his section by instituting changes that he has developed over the last five years while Claude Woods used the traditional format. The most significant change John made in the course structure was to use open-ended laboratory experiments in the last half of the course.

In order to prepare students for the critical thinking skills needed to maximize the learning experiences associated with these laboratory projects, the first half of the course was spent developing individual conceptual, computational, laboratory, problem-solving, and group skills. Other changes John made were in the course structure. They include instituting an absolute grading scale to encourage cooperative work habits, appointing a student board of directors to provide immediate feedback and formative assessment, assigning research papers that the groups must dissect and analyze to build group skills and to introduce key concepts important in the group projects, introducing group activities, e.g., think-pair-share exercises, collaborative problem solving, concept tests, etc., into the lecture to enhance group skills and problem recognition/solving skills, using cooperative take-home examinations to complement traditional exams to allow testing on more realistic and complex questions, and using spreadsheet programs to enhance student abilities in data handling, pattern recognition, mathematical modeling, etc. Student response to these changes was qualitatively evaluated by written responses and informal discussions with individual students; quantitative evaluation was obtained by questionnaires and by oral exams administered by 24 non-chemistry faculty members to matched samples of students from both sections of this course. Analysis of these data indicated that the students in the two sections were equally competent on content knowledge but the SFAL students was more adept at the process of problem solving. This experiment will be repeated in a future semester to answer two questions, about the effect of the instructor on the process and about whether chemistry faculty would give similar relative rankings to the students.

The NT Project also co-sponsored a Learning Communities Conference on campus in November that drew

over 200 faculty, staff and administrators from more than 80 campus units. Research on learning communities (LC) indicates that students learn concepts more effectively as a result of the interdisciplinary focus, that there is a higher degree of student involvement in the learning process, and that LC students find the large university to appear smaller and more personal. For the Spring 1996 semester, the NT project has formed course clusters with Chemistry 104 and Math 222 (calculus II). The Learning by Evaluation, Assessment and Dissemination (LEAD) Center on campus will conduct a formative assessment of this course cluster to better understand the challenges of making the LC concept work here. The experiment will be conducted again in earnest next fall with Chem. 103, Math 112 (algebra), and a writing course. While learning communities are now fairly common at smaller colleges, most large universities with LCs have seen them grow from collaborations across the humanities and/or social sciences. The unique feature of the LC's at Madison is that the initiative and sustaining momentum is coming from the NT Project and the College of Engineering.



DR. G. EARL PEACE, JR.

THE NT PROJECT has a new Associate Director, Dr. G. Earl Peace, Jr., who received a Ph.D. in Analytical Chemistry in 1971 from the U. of Illinois at Urbana-Champaign. He taught courses in General, Analytical, and Environmental Chemistry as well as Instrumental Methods of Analysis at Lafayette College for seven years and at the College of the Holy Cross for 12 years, winning awards for his teaching at each institution. At Holy Cross, he was directly involved with the establishment of the "Discovery Chemistry" curriculum, and also served for two years as Minority Student Advisor. Earl has been a USAF Summer Faculty Fellow (1980), an AAAS/EPA Environmental Science and Engineering Fellow (1981), and an American Council on Education Fellow (1990-91). In this latter position, he served as Special Assistant to the President at Bucknell U. He comes to the NT Project after three years in the UW System Office of Academic Affairs as an Academic Planner with responsibility for program reviews of all proposals for new majors within the areas of science, mathematics, engineering, agriculture and natural resources from the 26 campuses that make up the UW System.

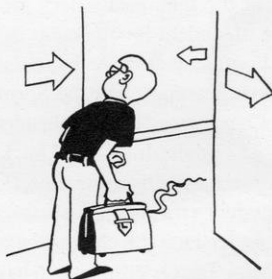
Chemical Education

Visitors

THE UW-MADISON'S chemical education activities bring many visitors to our department. Visits may range from several days to a year in length.

Fred Mattes, who teaches inorganic and analytical chemistry at Hastings College, spent the spring semester working with staff member Jerry Jacobsen to create video of chemical demonstrations that will become part of ChemDemos II, a videodisc soon to be published by JCE: Software. Eventually this video will be digitized and made available via a CD-ROM. John Zimmerman from Wabash College has also been a part of the video project, called "Images of Chemistry". For the past two years he returned for several short but productive visits. In town for a couple of two-week stints was George Gilbert of Denison U., who contributed his vast knowledge of chemical demonstrations to the project.

Charles Ophardt from Elmhurst College made several short visits to work with Nancy Gettys of the JCE: Software staff on his project: "Inorganic Molecules: A Visual Database". Charles's project, which includes a collection of images of molecules, electron densities, and other properties visualized via CAChe Scientific software, will eventually



become a CD-ROM that will provide a collection of molecular graphics for chemistry teachers. Phillip Pavlik of Northern Michigan U. consulted with Jon Holmes, Technical Editor of JCE: Software, and George Hardgrove (on leave from St. Olaf College) about animations for physical chemistry. We have also had short visits of chemists from the Netherlands and from Beijing, China, who were interested in how chemical education is done at Wisconsin.

Several of our visitors have been in residence to work on the New Traditions curriculum project. William F. (Flick) Coleman, Wellesley College, spent most of the spring semester here; he is producing an interactive textbook of physical chemistry using the MathCad program that will allow students to interact with and develop the ideas of physical chemistry. During the summer session Bill Robinson and Susan Nurrenbern from Purdue U. worked on computer software and cooperative learning techniques that will eventually be used in our general chemistry program. Bill's program, "A Window on the Solid State", represents a new approach in which computer graphics are used to teach solid-state structure. During the fall semester, Steve

Branz from San Jose State U. worked with Steve Burke and Paul Schatz to develop new teaching materials using the CAChe system. Steve will be returning to San Jose State to work with colleague Maureen Scharberg on an integrated course involving organic and general chemistry. George Hardgrove is working on new approaches to teaching crystallography using MathCad and other computer techniques. This work will continue during the second half of his sabbatical in spring, 1996. George first visited campus in February as part of a group of physical chemists who began to define the direction that the NT Project should take in this area. The group included George, Flick Coleman, and several other visitors: Theresa Zielinski (Niagara U.), Bob Ricci (Holy Cross College), Will Polik (Hope College), and Rick Moog (Franklin and Marshall College) along with several members of our department.

In addition to working on the NT project, George Hardgrove stepped in to teach Chemistry 108 this fall when increased enrollments caused us to need additional lecturers.

David Shaw (Ph.D. '75, Treichel) has been spending even more time than usual in the department. The NT project provided him with released time from Madison Area Technical College to organize the two-year-college component of the project. David is adapting the discovery-oriented labs that we are using at UW-Madison to MATC's curriculum. During the fall, he organized a meeting of faculty from technical colleges in Wisconsin that are participating in the project.

Institute for Chemical Education

There is much to report about the ICE program in 1995: staff changes, new publications, and summer programs. After nearly a year of searching, ICE promoted L. Christine (Christy) Cargille to the position of Associate Director. Christy has worked for ICE for about five years and has been successful in everything she has undertaken. In particular, she is responsible for the continuing success of the ICE Solid-State Model Kit and has been involved in both Chem Camp and summer workshop organization. Since taking over as Associate Director, Christy has written two proposals, one to NSF and one to the Eisenhower program. We have received no word on the former, but the latter has just been funded with a slight increase over the budget Christy proposed!

Amy Jo Huseth joined the ICE staff just as the summer workshop program began. As Outreach Specialist, Amy coordinates the

This could be *your* next quiz.

Using the figure at the right and recalling the videotape that was shown in class, answer the questions below.

1. If the molecule D undergoes a reaction catalyzed by HIV-1 protease, it is called a(n)....
2. The region labeled C is called the enzyme's....
3. The part of HIV-1 protease labeled A is a section of....
4. The two identical parts of HIV-1 protease labeled B are....
5. If the molecule D does not react and remains in this location, it is called a(n)....



**HIV-1 Protease:
An Enzyme at Work**

JOURNAL OF

Chemical Education: Software

SPICE program in schools, for which she has started soliciting industrial and business support. She is also ICE's communication link to field centers, affiliates, and former participants, Christy's right hand in developing proposals, and the person most likely to take on any new project that comes along. For example, she is working with an undergraduate student to develop ICE's presence on the World Wide Web and the Internet.

Jeanne Hamers came on board in May as an editor of ICE materials. Jeanne has a Ph.D. in chemistry, and one of her major tasks is to check scientific accuracy of our publications. One publication, Super Science Connections, was completed just in time for our summer workshop. It consists of science activities connected to stories, art, math, poetry, music, and everything else normally included in kindergarten through third grade classes. Jeanne is also revising the Topics in Chemistry series. She has completely rewritten "Chlorofluorocarbons" and the "Hole in the Ozone Layer". These revisions got a favorable review from Mario Molina, who asked to have his review copy rushed to him so it could be taken care of before he left for the Nobel ceremonies in Stockholm.

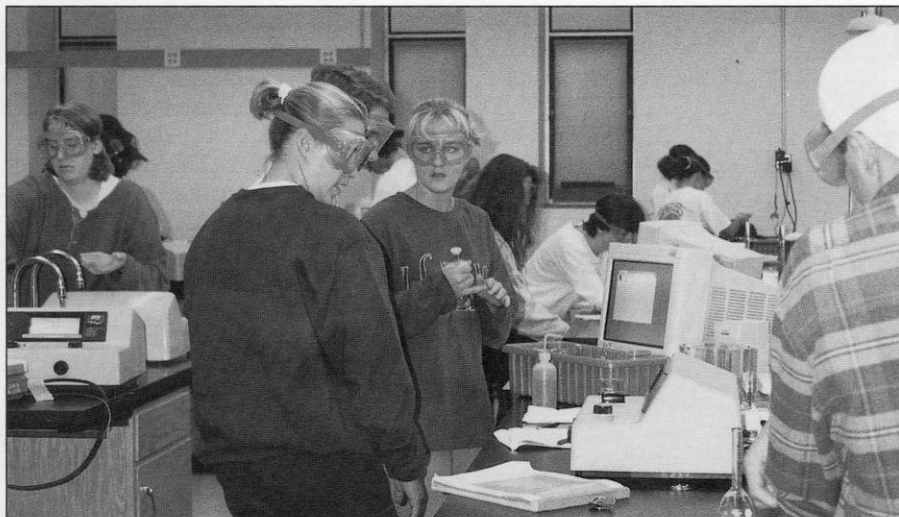
Summer, 1995 saw 40 middle school teachers participating in a four-week ICE Fundamentals of Chemistry program. Instructors were Bill Robinson, Marvin Lang (UW-Stevens Point, MS '64 West), Susan Nurrenbern, and David Shaw. We also had a two-week Super Science Connections workshop for 33 K-3 teachers. Janice Smith (York College, PA) coordinated five workshop leaders who are award-winning elementary school teachers to show how science can be integrated with the K-3 curriculum in an approachable, workable fashion. Armed with their SSC workbooks, the participants left Madison ready to give workshops of fellow teachers.

In addition to the workshop we had another Chem Camp program—three separate week-long sessions with middle school students introducing them to the fun of laboratory experimentation and lecture demonstrations.

This year, ICE summer activities involved more than 120 people, not counting Chem Camp students, and were capped by an evening of picnic and demos on the lawn at the Moores' Frank Lloyd Wright home.

JCE: Software

Every year is a busy one for JCE: Software, but 1995 was busier than ever. Staff



Room 1329: New General Chemistry Laboratory, constructed with Laboratory Modernization funding. The design enhances interactions between students and teachers.

members Jon Holmes, Nancy Gettys, Betty Moore, and Lin Morris produced and shipped six regular issues (two of them major multimedia programs) and six special issues. One special issue, PCNMR for Windows, came out of the department's Instrument Center and is aimed at college and university NMR operations. Two of the special issues were videodiscs. "ChemDemos" contains more than 30 chemical demonstrations shot close up so the chemistry is the center of attention; "Titration Techniques", as the name implies, describes important volumetric techniques and provides lots of "What is this person doing wrong?" footage as well.

This is the first year in which JCE: Software has produced a CD-ROM, and we produced three of them! "The Periodic Table" CD contains digitized versions of the video of reactions of the elements that were published earlier on the Periodic Table Videodisc. "Proton NMR Basics", by Carolyn Judd, was prepared by the Houston Community College district to provide a multimedia tutorial for students who do not have NMR instruments available. It also serves as an excellent introduction to the subject for students who do have access to NMR. "Solid-State Resources" CD, by Art Ellis and George Lisensky, contains digitized video of solid-state demonstrations, animations of atomic-scale processes in solids, and the complete text of "Materials Science Companion to General Chemistry" published by ACS Books.

Another first for JCE: Software in 1995 was our first videotape publication. Created by undergraduate science education student Erica Bode and chemistry graduate student John (Monty) Wright, "HIV-1 Protease: an

Enzyme at Work" drew on the expertise of Dan Rich, Clark Landis, and John Moore as well as others in Pharmacy, Engineering, and Chemistry. Julie Jensen, a local high school teacher, provided pedagogical expertise. Erica's activities were supported by the UW Science Education Scholars program, and she also received an award from the University Bookstore for the excellence of her project. The seven-minute video includes molecular modeling sequences showing action of an enzyme on the atomic scale as well as video of chemical demonstrations that illustrate enzyme action. It has been class tested and reviewed and is accompanied by a manual that includes several laboratory activities.

For More Information

People from around the world get materials from ICE, JCE: Software, and Project SERAPHIM, and they often need information, updates, etc. We try to respond rapidly by using *e-mail*, *Internet gopher*, and the *World Wide Web* to disseminate information. In addition, through our 800 number, you can obtain software support, find out about ICE workshops and publications, and order materials (by credit card, if you wish) for use in class the next day.

Here is how to reach us:

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Gopher: jchemed.chem.wisc.edu
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WWW: http://ice.chem.wisc.edu/ice
Phone: 1-800-991-5534

Chemistry Building Addition and Renovation

by Bob McMahon, Building Committee Chair

The chemistry building addition and renovation project is on track! In each of the last seven issues of the *Badger Chemist*, we reported on the trials and tribulations of this project. This year, we provide our most optimistic report. For perhaps the first time, we can now see our way through the maze of complications that have hindered progress of this project. With cautious optimism and growing confidence, we foresee that these developments should lead to groundbreaking for our new addition in mid-1997. These recent positive developments follow from support for the project at all levels within the University. The Department is extremely grateful to Chancellor David Ward, Provost John Wiley, and Dean Phil Certain for their active involvement in the project throughout 1995. At a Departmental Colloquium in September, Provost Wiley described the Chemistry building project as the "lynchpin" in the Campus plan for new construction.

Project Design

The new addition will be located on the northeast corner of Charter and Johnson Streets, and will connect with the existing Mathews building. The addition consists of four floors for synthetic chemistry laboratories (space for 88 students and 8 faculty), one floor for departmental instrumentation (X-ray, mass spec, ESR), and one floor for a departmental seminar room and study commons. Unfortunately, a fifth floor of synthetic chemistry, a new center for NMR spectroscopy, and an instructional addition at the corner of Mills and Johnson Streets have fallen victim to escalating costs. Although the Department faces pressing needs in its instructional programs, the current project focuses on infrastructure for research—by mandate of the WISTAR program and the Vilas Trust.

During the summer and fall of 1994, members of the chemistry building committee worked closely with the architects (Flad and Associates) and engineers (Affiliated Engineers, Inc.) to design the floor plan of the new addition and the layout of the synthetic chemistry laboratories. During the early months of 1995, the design team addressed the detailed layout of the instrument center, as well as preliminary aspects of the renovation of the existing Mathews and Daniels Buildings. The architects prepared a detailed status report (the so-called 35%

Design Report) in late April 1995 for review by the University, the State Department of Facilities Development, and the State Building Commission.

The site available at the northeast corner of Charter and Johnson Streets is quite small, leading to a relatively low "building efficiency" of 53% for the new addition. (Building efficiency is the ratio of assignable area to gross area.) Before reviewing the 35% Design Report, the State and University made a second attempt to acquire a larger site, the site currently occupied by the University United Methodist Church and the Wesley Foundation. An earlier proposal to acquire the church property (see *BC 38*) had been poorly conceived and carried forward by the University Office of Planning and Construction and was unsuccessful; but, suspicions remained that the church might respond favorably to a more realistic proposal. In the spring of 1995, with the direct involvement of Chancellor Ward, Provost Wiley, and Vice Chancellor Torphy, the University presented the church with a substantially-improved proposal. After considerable introspection, the church declined the proposal. Their decision was based on the importance of a central campus location to their ongoing mission. While the Chemistry Department was disappointed by the inability to acquire the church property, we are pleased that the University provided a realistic proposal and that the issue of the church site is off the table for good.

Now that the building site is established, the State and University are proceeding with their review of the 35% Design Report. We expect approval of the report by the State Building Commission in early spring. At that point, the design team will prepare construction drawings. The State will seek construction bids during the winter of 1996-97 and we hope to break ground in summer 1997.

Project Funding

The Chemistry Building Addition and Renovation project was authorized under the State of Wisconsin's WISTAR Program (Wisconsin Initiative for State Technology and Applied Research). Under this program, the cost of the \$31.4 M project is shared between the State (\$15.7 M) and the University (\$15.7 M). Thanks to the efforts of former Chancellor Donna Shalala, the Vilas Trust

agreed to provide \$10 M of the University's \$15.7 M commitment. The University, College, and Department have been actively pursuing fund-raising efforts to secure the remaining balance of \$5.7 M. There is a proposal currently pending review at NSF (in the Academic Research Infrastructure Program); if funded this would provide \$2 M toward renovation of the existing facilities. The Dow Foundation announced a major donation and Department Chair Fleming Crim is working closely with the University of Wisconsin Foundation to contact potential donors among the numerous friends of the Department (alumni and the chemical industry). There are naming opportunities for donations at many different levels. (Contact Fleming Crim to learn more.) You will be hearing more from us soon. It is extremely important that we raise at least \$5.7 M quickly, in order to begin on schedule and protect against future cost escalation. Recognizing the critical importance of the addition/renovation project to the future well-being of the Department, numerous faculty members have already provided financial contributions to the project. This action underscores the faculty's personal commitment to maintain an environment where teaching and learning flourish.

Project Management

Governor Thompson dramatically slashed the budget for the University's Office of Planning and Construction during 1995. This action induced several voluntary departures and also led to a few layoffs. As a result, the University no longer has a staff architect involved in the Chemistry project. The consequences of this situation are not yet clear, but the Chemistry Building Committee is concerned that the Department has lost an advocate in future deliberations with the State. On the positive side, the new Director of Planning and Construction, Bruce Braun, is a skilled, effective administrator with considerable experience in the UW-System.

1995 also brought changes to the Departmental Building Committee. Dan Cornwell and Paul Treichel stepped down from the committee; each provided many years of distinguished service to the committee and to the Department. Bob McMahon assumed the role of committee chair during the early months of 1995. ♦


Netscape: UW-Madison Department of Chemistry

Back Forward Home Reload Images Open Print Find Stop

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

What's New? What's Cool? Handbook Net Search Net Directory Newsgroups

University of Wisconsin Department of Chemistry



[Chemistry Department Gopher Server](#)

← →

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Welcome to our web page: <http://www.chem.wisc.edu>.

It can be accessed using any web browser, but works best with *Netscape*. The web site includes information on our faculty, staff, and graduate students, information on undergraduate and graduate programs, an online form for requesting graduate application forms, information of the NT Curriculum Development project, and links to home pages of various groups and individuals in the department. Drop by!

The Chemistry Building addition visualized through computer graphic rendering...



1999 A.D.



THE OVERVIEW

Delegated Authority: Freedom and Responsibility

The University is developing strategies for dealing with greater demands on limited resources, and the College of Letters and Science is trying a new approach that involves Chemistry as one of the lead departments. As the College faces smaller budgets from the State, the Dean has begun a pilot project to give individual departments greater control over their budgets, believing that flexibility in departments will stretch the University's resources. Chemistry is one of nine departments in Letters and Science participating in the delegated budget authority experiment. The two other natural science departments in the project are Computer Science and Mathematics.

The plan, which began last summer, is for the department to negotiate its budget with the Dean and Associate Dean on the basis of historical needs, projections for the next year, and special plans that it hopes to implement. The department meets its needs for the budget year from that allocation, benefiting from savings, even to the point of carrying them over to the next year, and suffering from unexpected expenses. This process puts a premium on careful planning and responsible decisions but also allows the department to make difficult decisions based on its particular priorities. The funding to the department no longer comes in different categories. Now we can decide how to balance our expenditures among personnel, supplies, and capital equipment within the limits of our continuing commitments to permanent members of the staff. The delegated budget process promises to simplify our administrative interactions with the College, as fewer routine requests and approvals pass back and forth. Chemistry is particularly well suited for this delegated budget authority experiment. It is a large department with a total budget of \$14 million, and personnel consisting of

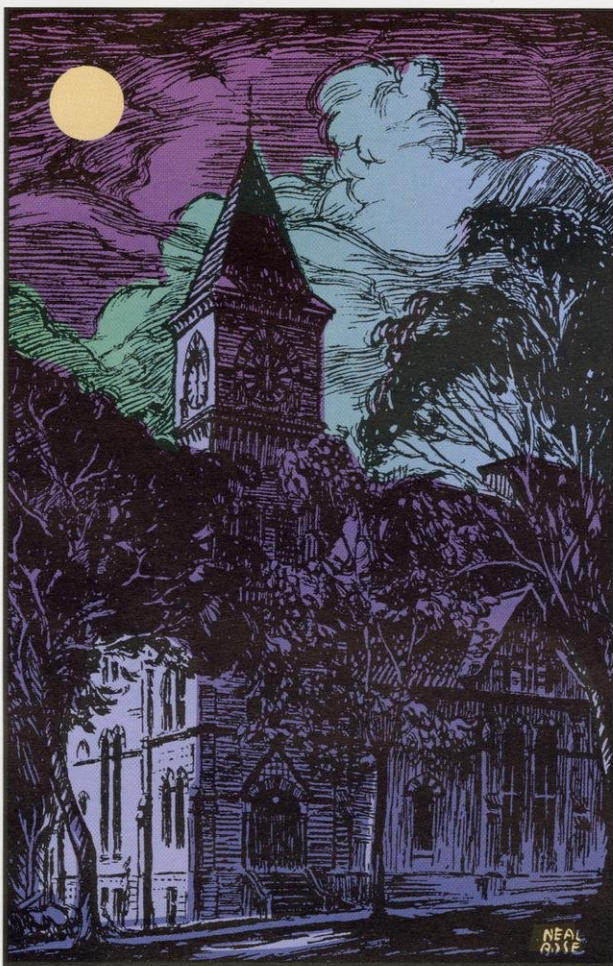
about 40 faculty, 25 academic staff, 40 classified staff, 30 post-doctoral associates, and 270 graduate students. These numbers make the Department of Chemistry as large as several smaller schools and colleges within the University. The budget for Chemistry from

tradition of open and collegial governance that will serve it well in this new environment. Like most pioneers, we may hit some difficult patches, but we think the flexibility of delegated budget authority will serve us well.

Executive Director

A change in the administrative landscape is likely during this coming year. The size and complexity of the Department, as partially described above, is making it increasingly difficult for the Chair and Associate Chair, who have half-time appointments, to meet all their duties while maintaining their scholarship and teaching. The department has approved the outlines of a plan to add an Executive Director, officially known as an Administrative Officer, to the staff and is now working out the details with the College and University. The College has committed partial funding for the position for the first three years, after which time the Department will find full support in its budget. The Executive Director will be a full time academic staff member who will take on many of the day to day administrative responsibilities that now fall to the Chair and Associate Chair. This plan provides continuity as different members of the faculty take their turn at leading the Department. The goal is to allow the Chair to deal with the most important issues while continuing an active research program.

One of the important tasks of our new Executive Director will be to work closely with the architects and engineers as we move into the actual construction of an addition to the Chemistry Building. As described in detail elsewhere in this issue, we are coming to a crucial time in moving toward an addition to our facility. Important decisions are expected to occur in 1996, and we hope to move ahead rapidly after receiving approval from the State. Our next task is securing the matching funds for the addition, and we expect that to be an important activity during the next few years.



L&S is about \$7 million with the balance coming from research grants and gift funds. Because the department has discretionary gift funds, which are the key to our margin of excellence, we have experience deciding collectively how to direct at least a portion of our resources. In other departments, some participants in the pilot project worry about difficult decisions producing conflict and contention. While limited resources and the inability to "blame the Dean" will make decisions more difficult, Chemistry has a strong

NRC Rankings of Grad Schools

The National Research Council's study, "Research Doctorate Programs in the United States" was released in September. Overall, rankings were made on two criteria, scholarly quality and effectiveness of teaching Ph.D. candidates. Among U.S. Chemistry Departments, our department was ranked in the top ten on both criteria. In the previous survey, released in 1982, our department was similarly placed.

This four year survey ran to 740 pages and is generally regarded as the most meaningful evaluation of graduate programs. Overall, it reported on 3,634 programs in 41 disciplines, at 274 institutions across the country. More than 8,000 faculty members participated in these evaluations.

The NRC, founded in 1916, is the principal operating agency of the National Academy of Sciences and the National Academy of Engineering. More extensive information contained in this survey is available on the *NAS Web Site*: <http://www.nas.edu>.

New Instrumentation

Majors steps were taken to upgrade the instrumentation in the Chemistry Instrument Center during 1995. New acquisitions were funded by a combination of NSF Instrumentation grants, departmental funds, and Graduate School support.

NMR: The Magnetic Resonance Facility obtained three new NMR spectrometers from Bruker Instruments. These instruments are primarily used for obtaining routine one dimensional data, most often for checking the purity of synthetic intermediates. Two of the spectrometers operate at 300 MHz for proton acquisition, and the third operates at 250 MHz. One of the 300 MHz spectrometers is used exclusively for ^1H and ^{13}C acquisition. The other 300 MHz spectrometer has a quadrupole probe that facilitates simple acquisition of ^1H , ^{13}C , ^{31}P and ^{19}F data. This same spectrometer is equipped with an automatic sample changer for unattended acquisition and plotting of data during the night. Students simply select the experiments they need for each sample from a menu, and pick the data up the next morning. A fairly complete set of short-term (<2 h) experiments are available, including homonuclear and heteronuclear correlation (2D COSY and HETCOR). The 250 MHz spectrometer is equipped to obtain data for any nucleus (i.e. it's broadband), and has a variable temperature accessory. This instrument is heavily used in our graduate level NMR training courses. These new spec-

trometers have provided a considerable improvement in our routine NMR capabilities. We are working to upgrade our higher field research instruments as well, and hope to be telling you about new capabilities in this area next year.

Mass Spectrometry: In 1994 a high-resolution mass spectrometer was installed, allowing expansion of the services provided by the mass spectrometry facility. The instrument has also been used for mass spectrometry research and several publications co-authored by mass spectrometry staff have already appeared. One application that deserves special mention is the use of electrospray for analysis of borane salts. Electrospray yields remarkably useful, interesting information, which cannot be obtained by other analytical techniques. This research was performed by Marcel Hop, Director of Mass Spectrometry, and Don Gaines.

The next step in the development of the mass spectrometry facility is acquisition of a matrix-assisted laser desorption/ionization time-of-flight (MALDITOF) mass spectrometer. A grant proposal for acquisition of such an instrument was funded by NSF in 1995. We expect the new instrument to arrive in March 1996. It will allow observation of intact biopolymers (peptides, proteins, oligosaccharides and oligonucleotides) as well as synthetic polymers with a molecular weight of 100,000 atomic mass units or more.

X-ray Diffraction: The X-ray facility acquired a CCD area detector from Siemens with the help of an NSF grant to Prof. Larry Dahl. Siemens typically sells the CCD detector with a 3-circle goniometer and an X-ray generator. However, our CCD detector was purchased separately and installed on an existing 4-circle diffractometer. The CCD area detector allows all data sets to be collected in less than 24 hours, and is much more sensitive than our previous detectors. Dr. Charles Campana (Ph.D. '75, Dahl) from Siemens was "instrumental" in helping us acquire and set up this equipment.

Enrollment

The UW-Madison enrollment decreased for the sixth consecutive year. In September, 1995 the final tally stood at 40,005 down about 0.75% from the previous year and down 8.3% since 1988. As reported in previous BCs, this was a planned decrease. However, the enrollment is now expected to rise during the next decade as the university expands to meet the pressures of higher numbers of graduates from state high schools.

Although the overall enrollment decreased, there was a marked (and unplanned) increase in enrollment of freshmen over the number in 1994. UW-Madison enrolled almost ten percent more freshmen (5,164 vs. 4,681 in the previous fall). Because about 60% of Chemistry's enrollment comes in general chemistry, the increase of freshmen had a major impact on the department. The department enrolled over 3,200 students in general chemistry courses, up by 3.3% from the previous year. Because we had already reached capacity, special provisions were required to accommodate these students.

For a number of years, enrollment problems had been building up in Chemistry 344, the first semester organic lab. The capacity of these labs, defined by the number of desks and drawers, is about 400, and this number was reached several years ago. The department has watched as the size of waiting lists to get into this course grew. In the last few years, the high demand was handled by a steady increase in the enrollment of both the summer session and the fall semester course. In the spring semester of 1996, however, the problem got too severe. Responding to student pressure, the UW administration provided additional funding to the department allowing us to create four additional sections (for around 70 students) in a Tuesday-Thursday evening laboratory.

News from Around Campus

Budget: As the department struggled with budgetary decisions under its new delegated authority, the UW has been struggling with the cuts of state revenue that are occurring during the 1995-7 biennium. The budget included a net reduction of state funding of \$33 million. This number represents cuts of \$23.9 million in 1995-6 and an additional \$19.8 million in 1996-7, the cuts to be partially offset by tuition increases of \$10.7 million. The UW-Madison, because of its size, bears a healthy share of this cut, \$20 million over the two years. This is a cut in the existing base budget of the university, the first to occur in many years, and not just a decrease in the rate of growth of the budget. Since most of the state budget is in salaries, it is not surprising that the funding cuts translate into cuts in positions. In all, an estimated 322 positions are expected to be lost within the UW System in the process.

In 1992, the college's strategic plan posed a scenario of cuts to balance the college

AWARDS ♦ AWARDS ♦ AWARDS



Two new Graduate School awards programs were initiated and Chemistry faculty members came out winners. Mid-Career awards, established in 1994, were created to bridge the two existing Graduate School awards, the Romnes awards for recently tenured faculty and the University Houses Chairs, which typically go to older faculty. The intent of the Mid-Career award is to assist and honor faculty members in the most productive phase of their careers. Chemistry's nominee **Jim Skinner** was one of eight faculty members chosen from across campus. This award provides an unrestricted research grant of \$50,000. Then, during the fall, the Graduate School announced the Vilas Associates Program. Supported by the Vilas Trust, this program is directed to mid-career faculty members, with preference to faculty near the point of promotion to full professor. **Steve Burke** and **Rob Corn** were chosen for this award which provides summer salary and a small research grant for two years.

Denise Denton, who holds a joint appointment in Chemistry and Electrical and Computer Engineering, received the George Westinghouse award, presented by the American Society of Engineering Education (ASEE) at the society's awards banquet in June.

John Moore became the 11th Chemistry Department faculty member to receive a UW-Madison teaching award when he was presented with the Underkofler Award at the April awards ceremony. This award, sponsored by Wisconsin Power and Light Corp., is given by the UW System. After being ranked first in the campus-wide competition for a university award, John's documentation had been forwarded to System by the UW-Madison campus for this special award. John's activities in chemical education are highly visible on campus (and nationally!). His award was broadly based: developments in user friendly computer and multi-media instruction, leadership in the department's activities to improve general chemistry teaching, involvement in a special section of general chemistry for students with deficiencies, and equally important, outstanding recommendations by his students.

The 1995 Upjohn Teaching Awards went to **Clark Landis** and **Jim Weisshaar**. These awards were presented by Professor **Crim** and Dr. **James Freeman** of the Upjohn Co. at the fourth annual awards symposium. Clark's talk, "Teaching Chemistry Through Real-World Topics", elaborated on work that he was doing as part the NSF sponsored curriculum reform project. Over the past year, he and several of his students have been developing modules that will guide teachers using a topic-oriented approach. Jim's award was based on his leadership in creating Chemistry 115 and 116. His talk, "Elitism, Mathematics, and Quantum Mechanics at the UW-Madison," described his experiences.

Paul Schatz, Director of the Organic Laboratories, received a 1995 Educom Medal. Three awards are given annually in a nationwide competition. The award was created by Educom, a nonprofit consortium of 600 colleges and universities founded in 1964, that provides information, technical services, and leadership to members in computing and communications issues. The award was created a year ago to recognize innovative uses in instructional technology. Paul was honored for creating instructional software that allowed simulation of the use of IR and NMR spectrometers and interpretation of the spectral data. The award was presented at Educom's general meeting on Nov. 1.



STUDENT AWARDS

The third annual Hoechst Celanese Excellence Awards were presented in an awards colloquium on Monday, September 18. Award recipients presented short talks on their research. Awardees included: **Frederick I. Braid** (BS '89, Michigan, a student of John Schrag), **Susan L. Hallenbeck** (BS '88, Wellesley, a student of Chuck Casey); **Ross Weatherman** (AB '91, Wabash; a student of Laura Kiessling); **Sergei A. Egorov** (BS '87, Leningrad U., a student of Jim Skinner); and **Neil E. Moe** (BS '91, Illinois, a student of Mark Ediger).

David B. Rozema (BA '91, Calvin College, a student of Sam Gellman) and **Kathleen H. Mortell** (BA '87, Northwestern, a student of Laura Kiessling) were awarded graduate fellowships for 1995-6 by the ACS-Division of Organic Chemistry. Four 1995-6 graduate fellowships were awarded in the department: the W. R. Grace Fellowship to **Yajun Wang** (BS '86, U. of Science and Technology, Heifei, PRC, working with Bob Hamers); the Lubrizol Fellowship to **Sergei Egorov**; the AMOCO Fellowship to **Ross Weatherman**; and the P & G Fellowship to **Susan Hallenbeck**.

Brian Austad (BS '91, UW-Eau Claire, with Steve Burke), **Michael P. Haaf** (BS '94, Ithaca College, with Bob West), and **Shea Ramey** (BS '93, Case Western Reserve, with Dahl) were named as 1995 TA awardees.

Mary Cloninger (BS '91, TCU, with Howard Whitlock) was selected by the College of Letters and Sciences as an L & S Teaching Fellow. Teaching Fellows are chosen to lead teacher training workshops for TA each fall.

Kathryn Koeller was selected for a 1995 Pfizer Summer Fellowship. The award provided a summer appointment to do research in Laura Kiessling's labs. Kathryn and Laura also visited Pfizer's Central Research Headquarters in Groton CT where Kathryn gave a poster presentation on her work.

Three undergraduate chemistry majors, **Andrew Souers**, **David Six**, and **Eric Scott** received Hilldale Scholarships to carry out summer research projects in the department. **Erica Bode** received a 1995 University Book Store Award for an independent study project with John Moore's group.

OTHER NEWS, (from p.4)

Special Summer Courses

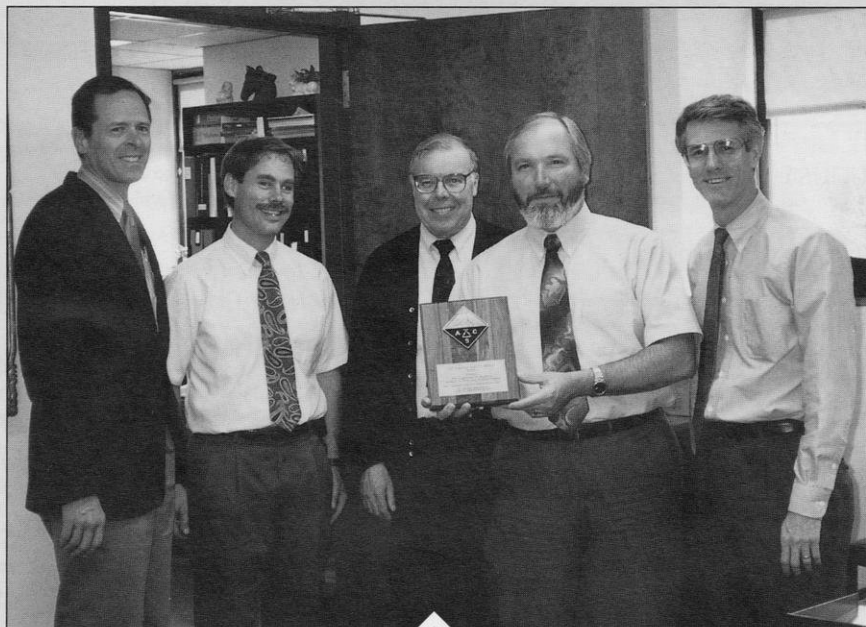
In June John Moore and Paul Schatz collaborated to teach a special course for six talented and gifted high school students under the auspices of the Wisconsin Center for Academically Talented Youth. The course was centered on molecular modeling using the CAChe Scientific software the department had obtained under a grant from CAChe and a local grant from the Division of Information Technology. Each student studied background material needed to understand the theory behind the molecular modeling program, including molecular orbitals. Students also were introduced to the research of about half the chemistry faculty, and some developed future research connections. By the end of the three-week course, each student had created a report on a molecule or class of molecules, and those reports have now been published via the department's *World Wide Web* site, <http://www.chem.wisc.edu>. Eventually we expect that they will appear on a CD-ROM as well. Also in June, the department hosted a CAChe workshop for teachers from midwestern colleges and universities. About 20 attendees learned how to use the CAChe system in their classes and research.

Fifth Hirschfelder Prize in Theoretical Chemistry

Michael E. Fisher, Professor at the U. of Maryland, was the fifth Hirschfelder Prize recipient. He was a visitor to the department for the award ceremony in late September, presenting three lectures to the department, the last two focusing on his research in theory of critical phenomena and phase transitions.

Annual Chemistry Lecture Series

The Karl Folkers Lecture Series in February, 1995 featured Professor Ken Houk from UCLA. He gave three lectures: "Transition States of Antibody-Catalyzed Organic Reactions"; "Simulations of Structures, Reactions, and Dynamics of Carcerands and Carceplexes"; and "Recent Developments in Theory and Modeling of Stereoselective Organic Reactions." In October, Professor Richard Smalley of Rice University presented the 1995 Willard Lectures. His two lectures on fullerenes, nanotubes, and nanotechnology were delivered to capacity audiences.



CHEMISTRY DEPARTMENT WINS ACS DIVISION OF CHEMICAL HEALTH AND SAFETY COLLEGE HEALTH AWARD

The UW-Madison Department of Chemistry received the Chemical Health and Safety Division's 1995 College Health and Safety Award for outstanding safety program and practices. The award, consisting of a \$1000 check and a plaque, was presented at an ACS awards symposium last fall. The award was established in 1991 to recognize the college or university demonstrating the most comprehensive program of chemical laboratory safety. The award was based on several criteria. It recognized the overall safety record the department and the many significant safety programs, communications, training materials and safety resources which have been incorporated into our teaching and research activities.

One of the most significant components in our safety program is Chemistry 607, a one credit course in Laboratory Safety required of all new graduate students. Chemistry 607 was created and taught by Dr. Gery Essenmacher. The course focuses on several key aspects of laboratory safety. Topics covered include: Federal/State Regulations, Hazards of Organic Chemicals, Experiments at High or

Low Pressures, Safety Concerns of Inorganic Chemicals, Optical Radiation Source Safety Practices, Environmental Toxicology, Proper Storage and Disposal of Chemicals, Material Safety Data Sheets, Radioisotopes: Use and Safety, Carcinogens, and Risk Assessment.

Other department's activities related to safety include the development of chemical hygiene plans for each teaching and research lab within the department, continued safety training of all teaching and research assistants, and laboratory safety orientation and evaluation in every introductory undergraduate course at the beginning of each semester.

Further support of the department's safety program is seen with the availability of MSDS within our Department Library on CD-ROM as well via internet access on our department Gopher Server. The new "Chemical Safety and Disposal Guide", developed by the UW Safety Department, describes policies and practices in detail. In conjunction with the UW Safety Department, the Chemistry Department has conducted several "Chemical Clean Sweep" days providing proper and thorough clean-up of unused chemicals.

NEW BADGER CHEMISTS



MAY, 1994

ALBRECHT, STEVEN (MCMAHON)

"Photochemistry and Thermal Chemistry of Naphthyl Carbenes Probed by Matrix-Isolation Spectroscopy".

CARROLL, JOHN J. (WEISSHAAR)

"Kinetics and Mechanisms of Gas-Phase Reactions of Transition Metal Atoms with Small Hydrocarbons".

DE SOUZA-MACHADO, RESSANO (DENTON)

"An Investigation into the Degradation Chemistry of Polyimide and Benzocyclobutene Thin Films Using Microelectronics Through Examination of the Their Surfaces Using X-ray Photoelectron Spectroscopy".

DIVER, STEVEN T. (VEDEJS)

"Nucleophilic Phosphine-Catalyzed Acylation: Scope and Implications for Asymmetric Synthesis".

GAMSKY, CHRISTOPHER J. (TAYLOR)

"Reflectance PF-IR For Monitoring Chemical Reactions in Chemical Amplified Photoresists for 0.25 mm X-ray Lithography".

HOLMGREN, STEVEN K. (GELLMAN)

"Monosaccharide and Ion Complexation: Design and Synthesis of Phosphine Oxide- and Sulfoxide-Based Receptors".

KOWALSKI, DANIEL V. (NATHANSON)

"Atomic Beam Scattering of Inert Gases From Liquid Indium".

LYNCH, CHRISTOPHER (RICH)

"The Search for Cyclophilin Inhibitors: The Design and Synthesis of Conformationally Constrained Scaffolds".

ORTH, DALE (SKINNER)

"Inhomogeneous Broadening of Impurity Transitions in Crystalline Hosts".

NEWCOMB, LISA F. (GELLMAN)

"Investigation of Aromatic-Aromatic Interactions in Water Using Aromatic Groups Joined by Flexible Tethers".

AUGUST 1995

BRIDGES, ADAM N. (GAINES)

"Recent Developments in the Chemistry of the Decaborane (14) System; Specific Monoalkylation and Cage Enlargement via Boron and Group 14 Heteroatom Insertion".

DIERKS, ELIZABETH A. (BURSTYN)

"Studies on the Mechanisms of Activation and Deactivation of Soluble Guanylyl Cyclase From Bovine Lung".

OLSEN, LAWRENCE R. (WRIGHT)

"The Defect Chemistry and Diffusion of Fluoride Interstitials in Eu²⁺ Doped CaF₂ Studied with Site Selective Spectroscopy and High Pressure Techniques".

PUCKETT, CRAIG L. (REICH)

"I. The Metal-Halogen Exchange; II. The Lithium-Tellurium Exchange; III. The Lithium-Selenium Exchange".

SCHRIMPF, MICHAEL R. (VEDEJS)

"Complexation of Neutral and Cationic Prochiral Boron Reagents: Applications in Stereogenic Carbon Synthesis".

SCHROEDER (JESENA), MARIA (SCHRAG)

"Improving the Moderately-High Viscosity Capabilities of the Multiple Lumped Resonator and the Study of Polymacromonomers ("Bottlebrush" Polymers).

SHEN, JUN (LERNER)

"Design and Applications of Shaped Radiofrequency Pulses in NMR Spectroscopy".

WHITAKER, CRAIG M. (MCMAHON)

"Second-Order Nonlinear Optical Response of Organic Molecules".

DECEMBER 1995

CHEN, DANHUA (SMITH)

"High Speed DNA Sequencing by Horizontal Ultrathin Gel Electrophoresis".

DUNCAN, SCOTT M. (VEDEJS)

"Synthetic Studies Towards Cytochalasins: The Total Synthesis of Epi-C₁₆-Epi-C₁₈ Cytochalasin D".

GUDMUNDSSON, BIRGIT O. (REICH)

"I. Solution Behavior of Chelated and Non-Chelated Aryllithium Compounds. II. A Mechanistic Study of the Lithium-Selenium Exchange".

CARL R. KEMNITZ (MCMAHON)

"Matrix Isolation, Dispersive Kinetics, and Ab Initio Calculations on Organometallic Intermediates: CpMn(CO)₂, Fe(CO)₃(η²-C₂H₄), and HFe(CO)₃(η³-C₃H₃)".

KLASSEN, JANE K. (NATHANSON)

"Interactions of Sulfuric Acid with Monolayers and Molecular Beams".

MANGETTE, JOHN E. (WEST)

"Recent Advances in Disilene Reaction Chemistry".

SARKAR, SOMNATH (SHAKHASHIRI/WEST)

"Part I. Efforts Toward the Synthesis of a Stable Compound Containing A Silicon-Sulfur Double Bond. Part II. Demonstrations and Experiments.

SEANEY, LISA MARIE (VEDEJS)

"Synthetic Studies Towards Aziridinomitosenes".

SEBURG, RANDAL A. (MCMAHON)

"Structures, Ground-State Multiplicities, Hydrogen Shift, and Rearrangements of Alkyl and Acetylenic Carbenes".

WALKER, ROBERT A. (WEISSHAAR)

"Molecular Propellers-Internal Rotation in Substituted Toluene Molecules".



AUGUST DEGREE 1995

ECKART W. BEUTTENMULLER (CASEY)

JAYASREE BUDARAJU (WEST)

DAVID P. CARDIN (BURKE)

JONATHAN H. COPELAND (WEISSHAAR)

ANDREW MARSHALL (TREICHEL)

MATTHEW J. SCHROEDER (WEISSHAAR)

CURTIS J. WALTMAN (HAMERS)

AUGUST DEGREE 1995

SHIRVALEN R. CROWLEY (NELSEN)

JAMIE L. GIESLER (VEDEJS)

PAMELA A. MOONEY (BURKE)

STEPHANIE L. PITZ (LANDIS)

DAVID W. POLLOCK (LANDIS)

MICHAEL E. RICHETT (BURKE)

DECEMBER DEGREE 1995

NANCY CARTER (MCMAHON)

ALEXANDER V. GRISHAEV (YETHIRAJ)

KATHLEEN M. POLLOCK (MCMAHON)

TIMOTHY L. THOMAS (RICH)

GWYNNE M. WESLEY (REICH)

YINGSHENG ZHANG (KIESSLING)





DECEMBER DEGREE

JAMES PATRICK ARNOLD
 TRACY LEIGH HANKE
 PATRICIA ANN MCALLISTER
 BRANSTON JAY HAGGERTY

MAY DEGREE

STEPHEN ALLAN ANKENMAN
 CHIN LI CHEUNG
 JONATHAN SLADE CROWDER
 SCOTT ALLAN CURTIN
 BRIAN JAMES DROUIN
 MICHAEL PETER LA MERE
 VICTOR KA-TAI LAU
 STEPHEN R. PERCY
 SCOTT DAVID PHILLIPS
 DEANNA CHRISTINE ROEN
 MATTHEW R. SCHMIDT
 CHRISTOPHER JAMES SCORZELLI
 WILLIAM ALLEN WILSON
 JASON CHRISTOPHER YOUNG
 ROSANNE MARIE GERACI
 JODI M. MILHAUPT
 PERRI EDWARD ROMAN
 HANS U. STAUFFER
 THOMAS EDWARD HARBAUGH
 HEIDI KAYE JANITSCHKE
 JOHNNY LIMANTO
 MICHELE SUZANNE SCHULZE
 JAMES JUSTIN STREICHER
 MICHAEL SCOTT WENDLAND

AUGUST DEGREE

TIMOTHY WILLIAM HEELAN
 FRANK JOHN KORFIAS
 KYUNG-HOON LEE
 DONNA LOUISE MAJEWSKI
 SAMUEL OLIN RAFTER
 PETER SEAN SCHERKENBACH
 WING-KEUNG WOO

STEPPING DOWN; STEPPING UP

by Paul Treichel

The term was officially over on July 1, when I packed up the last few things and turned over Room 1307 to Fleming Crim. I had served as chair of the department for a month short of nine years, under four L & S Deans. This was the longest period of service for a department chair since J. Howard Mathews' 33 year stint (1929-52).

I had agreed to take over as Associate Chair in the early summer of 1986, following Ed Larsen's retirement. However, I was away for most of June, and had just begun to think about that position in mid-July when Chemistry Chair Phil Certain announced he had accepted a position as UW Associate Vice Chancellor. On August 1, I became Acting Chair of the department, in addition to my other roles as Associate Chair and Chair of the General Chemistry Division. The department embarked on its usual process of chair selection at that time, and I was formally chosen to be Chair about a month later.

One of the first problems I faced as chair was an ongoing academic retitling exercise. This had been imposed on the university by the state, perceived by many as some kind of sinister plot. I was able to convince most of our staff that the department would vigorously support and defend them if any problems developed. So, we got through the exercise. The limitation in flexibility imposed by titling and job categorization was offset with some positive consequences, including the ability to reward merit and changes in job activities with promotions through a series of titles (Assistant ..., Associate ..., and no prefix titles).

In 1986 we were a faculty of 38, on the way toward 32 because of a series of retirements, non-promotions, and departures of senior faculty. During the period between 1986 and 1993, we hired 14 new faculty members and extended joint appointments to three members of other departments. With two exceptions, every offer that we made in this seven year period was accepted. We reached a high point with 44 faculty members in the early '90s (not counting the joint appointments which had no budgetary commitment). Since then the number of faculty has decrease because of institutional cutbacks. When I stepped down, the department had returned to its earlier size of 38.

Attention to departmental finances dominated much of the first two thirds of my term. Startup costs for all of the new faculty exceeded three million dollars. Initially the Graduate School was able to provide half of the start up costs of each hire, but as time went on we were lucky if they could furnish a third. The rest had to come from departmental discretionary funding. At one point, we had outstanding commitments of departmental resources of over \$1.5 million. Careful planning on the use of gift money and the annual special capital exercise brought us through this problem successfully.

Most faculty will associate my chairmanship with the hiring of new faculty. The new faculty had a huge impact, not only because they introduced new areas of research but because of the excitement and enthusiasm carried over to all departmental activities. During the time the department worked as a team to address some challenging issues. But there are other things in my nine-year tenure that should not to be overlooked. There were many honors to members of the department, and in 1995 we happily learned of our ranking among the top 10 Chemistry Departments in the country. I am particularly proud that the department is now a friendlier place for our students, and that we have a strong reputation on campus as a well-run department.

At this time, I have enthusiastically returned to full time teaching and research. My research program is underway in earnest, focused on synthesis of metal clusters. My research group includes one graduate student and three undergrads and I expect to add a postdoc soon. Somewhere in the course of serving as department chair I became interested in scientific ethics and am currently teaching a seminar course in this area, in addition to my regular teaching in general chemistry and organometallic chemistry. I have a role in assisting in several committees in the department and on campus. Being chair was interesting and challenging, but didn't realized how much I missed being a faculty member.





Steve Albrecht (Ph.D. '95, McMAHON) accepted a position with H. B. Fuller in Minneapolis, Minnesota.

After completing a postdoctoral appointment with Penner-Hahn (MICHIGAN), **Terry Barnhart** (Ph.D. '93, McMAHON) joined GE's Central Research & Development Center in Schenectady, NY.

Christopher Bender (PD, '67 - '69, ZIMMERMAN) is Chair of the Department of Chemistry at the U. of Lethbridge, Canada.

Silas Blackstone (Ph.D. '85, NELSEN) is now at Vanderbilt; he was formerly at the U. of Alabama.

Alan Brown (Ph.D. '86, WHITLOCK), a faculty member at Florida Tech, was promoted to associate professor in 1994. He reported that the department there has a strong connection to the UW: **Mike Babich** (BS, '67) is current chair, while **Paul Kiprof** (PD '91-'92, CASEY) and **Gene Smith** (BS '83, in food science) are assistant professors in the Chemistry Department.

Art Cammers-Goodwin (Ph.D. '94, VEDEJS) completed his postdoc at MIT and is now an assistant professor at the U. of Kentucky, Lexington.

Don Cromer (B.S. '47, Ph.D. '51, IHDE) retired after a long career at Los Alamos.

Jeff DePinto (Ph.D. '93, McMAHON) completed his postdoctoral studies with Buchwald (MIT) and is now with Air Products in Allentown, Pennsylvania.

Ressano DeSouza-Machado (Ph.D. '95, DENTON) is a lecturer at UW-La Crosse.

BC had a nice letter from **Adrian Docken** (Ph.D. '41, SPIELMAN). We were able to send him an address that he wanted. After receiving his Ph.D., Ade held a postdoctoral appointment at Northwestern and then joined the faculty of Luther College where he taught until his formal retirement in 1979. Retirement hasn't slowed him down much; he still works 5 or 6 hours per day with student collaborators on research projects; these involve, currently, the synthesis of polyaromatic compounds that have practical electrical properties.

Mark Fischer (Ph.D. '78, GAINES) works at Chemical Abstracts, Columbus, OH. In August, he and his family visited the department.

Ned Fody (M.S. '70, GAINES) and his wife **Nancy Keipe** (B.S. '70) visited the department in August. Ned is Director of Pathology and Laboratory Services at Bethesda Oak Hospital in Cincinnati, OH.

William French (Ph.D. '69, WILLARD) is in Dusseldorf, Germany, where he is Technical Director for 3M's Traffic Graphic and Safety business.

Albert Fry (Ph.D. '64, LEMAL) wrote from Wesleyan U. (Middletown, CT) that Wisconsin Ph.D.s **Fred Menger** (Ph.D. '63, LEMAL, currently at Emory U.) and **Ken Kirk** (Ph.D. '63, VAN TAMELEN, currently at NIH) visited as seminar speakers last year.

Marc Gingras (PD, VEDEJS AND KIESSLING) has a faculty position at the Universite Libre de Bruxelles.

After working as a Process Chemist at 3M in Buffalo, and as a Technology Forecasting Analyst at Kodak, **Mark Gisser** (Ph.D. '92, EDIGER) entered and completed a MBA program at Rochester U.

Rich Givens (Ph.D. '66, ZIMMERMAN) is now Associate Vice Chancellor for Academic Affairs at the U. of Kansas.

Gary Grunwald (Ph.D. '65, ZIMMERMAN) is Chairman of the Department of Medicinal Chemistry at U. of Kansas.

Bill Herdle (Ph.D. '75, TROST) sent in a change of address. Bill is currently in Switzerland, on a 3 year assignment as Manager of European R&D for OSI Specialties, the former Silicones Division of Union Carbide, now a part of Witco Corp.

Scott Hewitt (BA '84) is currently Assistant Professor in Chemistry and Biochemistry at California State University in Fuller-

ton. He recently received an outstanding untenured faculty award from this school.

Andrew Hinck (PD, KIESSLING) is a postdoctoral researcher at NIH with Torchia.

Phelps Johnson (Ph.D. '87, ELLIS) is currently in Medical School at the Medical College of Wisconsin in Milwaukee.

Michael A. Jordan (BS, '90) was flying SH-60B helicopters for the Navy, spending time in both the Arabian Gulf and in Somalia.

Mark Kalesse (PD, KIESSLING) has a faculty position at Hanover, Germany.

Brad Karas (Ph.D. '81, ELLIS) is manager, chemical process engineering, GE superabrasives, in Worthington, OH.

Mark Kelly (BS '84) is an assistant professor at Creighton U., Omaha.

Carl Kemnitz (Ph.D. '95, McMAHON) accepted a postdoctoral position with Prof. Wes Borden at the U. of Washington.

Susan Klein (Ph.D., '94, NELSEN) has been appointed to the faculty at Midwestern State U., Wichita Falls, TX.

Rein Kirss (Ph.D. '86, TREICHEL) was promoted to Associate Professor with tenure at Northeastern University. He has a sabbatical and is using part of it to do some writing on a textbook he is coauthoring.

Stan Kosiewicz (Ph.D. '73, HASKIN) currently is the Waste Management Coordinator at Los Alamos National Laboratory. He was recently presented with a LANL Waste Minimization Award. Some of this cash award was used to defray a scuba diving trip in Fiji in 1995.



Kevin Kott (Ph.D. '93, McMAHON) is with Procter and Gamble in Cincinnati, OH. Kevin and Linda are proud parents of a son, Andrew, born in May 1995.

John Kretsch (BS '73) described putting on chemistry demonstrations to two grade schools in Milwaukee and to a local Cub Scout troop. He is looking forward to seeing his son enroll at the UW-Madison in 1996.

Andre Kutateladze (PD '92 - '95, ZIMMERMAN) is now an assistant professor at the University of Denver. Another former Zimmerman student, **Joe Horbeck** (PD '68-'70), is also on the faculty there.

Leslie Lyons (PH.D. '87, EVANS AND TREICHEL) and **Lee Sharpe** (PH.D. '87, ELLIS) were both granted tenure at Grinnell College where they share a position. They are spending the 1995-6 academic year at the U. of North Carolina.

Ron Morse (PH.D. '67, ZIMMERMAN) moved to the Huntsman Corporation as a Senior Research Associate.

Cathy Murphy (PH.D. '91, ELLIS), faculty member at U. South Carolina, received a NSF CAREER Award.

Paul Nakagaki (PH.D. '85, TREICHEL) sent a note in May, 1995. He is working as Chemistry, Manufacturing, and Controls Leader in one of Syntex's international project teams, which has given him extensive travel opportunities to a number of places in the world including Spain, Puerto Rico, France and Switzerland.



Ambrose Nichols (PH.D. '39, WALTON) wrote, hoping that his contribution might encourage others of his generation to write in with news. He reviewed his background: teaching at San Diego State and Sonoma State Universities from 1939 - 1976, with interruptions involving civilian service during the Second World War and, later, a year and several summers at Oak Ridge National Laboratory. He remains in touch with several other UW alums.

In October, **Donald J. Plazek** (B.S., '53, PH.D. '57, FERRY) received the Bingham Medal of the Society of Rheology.

DuPont has awarded **V. N. Mallikarjuna Rao** (PD '69 - '73, West) the title of distinguished scientist. He is the third DuPont scientist to be so honored, since initiation of the title in 1992. Malli works in the fluorochemicals division on alternative coolants and has more than 50 patents to his credit.

Kurt Rublein (PH.D. '89, TREICHEL) accepted a tenure track position at Lock Haven (PA), U.

Many respondents to the editor including **Gary R. Weisman** (PH.D. '76, NELSEN), **Lawrence Stein** (PH.D. '52), **Donald R. Williams** (BS '37) wrote to say that they appreciated Paul Schatz's genealogy.

Marietta (Haeg) Schwartz (PH.D. '88, WHITLOCK) and **Eric Schwartz** (PH.D. '88, VEDEJS) sent us a new address for our mailing list.

Randy Seburg (PH.D. '95, MCMAHON) accepted a postdoctoral position with Squires at Purdue U.

Heinz Stucky (PH.D. '72, WHITLOCK) responded with comments about the article on the New Traditions Curriculum Reform project. He is currently Director of Economic Development for Tuscarawas County (OH), not as he says, a position that he expected from his Ph.D. training. Through this position, he reflected on the need to match skills of our graduates with the employment needs.

Laren Tolbert (PH.D. '75, ZIMMERMAN) is Chair of the Chemistry Department at Georgia Tech.

Donald L. Town (PH.D. '63, GOERING) writes that he has recently moved to Atlanta and works for the Facility Group, designing and building facilities to manufacture products for the pharmaceutical, chemical, and food industries.

Craig Whitaker (PH.D. '95, MCMAHON) accepted a postdoctoral position with Prof. Sam Stupp in the Department of Materials Science at the U. of Illinois.

Jens Wolff (PD '91, NELSEN) finished his Habilitation at Heidelberg.

Timothy Yeko (BS '78) went on from Wisconsin to pursue a career in medicine. He wrote with reflections on his undergraduate days: Yu was a favorite lecturer because of his sense of humor, Ihde's history of chemistry his most enjoyable class.



CHEMISTRY BUILDING COMMITTEE

BOB MCMAHON, Chair

FLEMING CRIM, DON GAINES,

JOHN MOORE, HANS REICH, MATT SANDERS

Projected Timeline

Spring 1996

Approval of 35% Design Report by
State Building Commission
Summer / Fall 1996

Prepare Construction Drawings
Winter 1996

Construction Bids, Begin Construction
Summer 1997

Occupy New Addition,
Begin Renovation of Mathews / Daniels
Winter 1999

Complete Renovation of Mathews / Daniels
2001



Campus News, from page 13

budget that mostly involved faculty cuts. Now three years along, the number of L&S faculty has decreased from about 950 to 900. Even after completing this round of cuts in the next 2 years, further cuts loom clearly on the horizon. The cuts in the state budget were not factored into the earlier scenario and much of the savings planned earlier were simply lost. Furthermore, the chancellor has mandated that colleges and schools develop plans for additional 2% cuts in each of the next five years. In a draft of a position paper released in November, L & S Dean Phil Certain indicated that this would necessarily involve further cuts with decreases in faculty in the college to perhaps the 800 level.

NISE: The UW-Madison was selected as the site for the National Institute for Science Education (NISE), beating out Harvard, Stanford and Cal-Berkeley in the process. The NSF will fund the institute at the rate of \$2 million per year. Denise Denton is one of the two faculty members heading this institute, and faculty and staff within the university. The institute's goal is to lay the foundation for science, math, and engineering education reform from kindergarten through college.

Chemistry Database: UW-Madison is the host institution for *Crossfire*, a new organic chemical database that includes 6.5 million chemicals. In an agreement with Beilstein, the developer of *Crossfire*, 15 institutions in the midwest will be allowed to access the database. This arrangement was set up through a consortium called the Committee on Institutional Cooperation. The arrangement that brought *Crossfire* to the campus will also permit UW-Madison students and faculty to access the library resources of other campuses.

UW Campus Master Plan: In the news periodically during 1995 was information about a campus "Master Plan". An external consultant was hired and there were several open meetings of a campus steering committee to solicit opinions of faculty and staff on what the campus should look like in 20 to 30 years. On this agenda: traffic patterns, parking, pedestrian flow, campus aesthetics, organization of the campus relative to function, building development, and other related issues. Evolving from this in December was a "Preliminary Master Plan". Some highlights include more open space, overhead walkways and streets, a mall with pedestrian linkage between Lake Mendota and the proposed Kohl Center, more parking ramps, and development and expansion of the West Campus focusing on the Medical Center.

IN MEMORIAM**1995 - 1996****Herbert H. Espy**

(Ph.D., '56, GOERING) died unexpectedly in October. He had retired from Hercules Research Center in 1991.

Jim Guilianelli

Died in July, 1995 in a rafting accident in Browns Canyon on the Arkansas River. Jim did his graduate work at the UW (Ph.D. '69). Following receipt of his degree, he held a postdoctoral position at Texas. After an initial faculty appointment at the Colorado school of Mines, he moved to Regis U. in 1985. At Regis, he taught general, physical and environmental chemistry while pursuing research interests in spectroscopy and solar energy. He was founder and director of the Regis Institute for Chemical Education, and active in promoting chemistry to precollege students.

William S. Johnson

Died August 19, 1995. Johnson was a member of the UW-Madison Chemistry Department faculty from 1940 to 1960. He was promoted to full professor in 1946 and named to the Homer Adkins Professorship in 1960. Soon thereafter, he moved to Stanford as Professor and Executive Head of the Chemistry Department. He had an outstanding record in synthetic organic chemistry, winning many national awards, highlighted by the National Medal of Science.

Robert Klein

(B.S. '47, Ph.D. '53, IHDE) died in 1993. He had been living in Door County, after retiring from his position on the faculty at Ohio U., Athens OH.

Alan Campbell Ling

Died in an accident in July. He had held a postdoctoral position at the UW from 1966-1968. At the time of his death, he was provost and vice president for academic affairs at the University of North Florida; prior to that he had been at San Jose State U. for 18 years, serving as faculty member, chairman and then dean of the College of Science.

Joseph Marking

Died at age 102. He worked in the Chemistry Department shop for 33 years, until his retirement in 1958.

E. Earl Royals

(Ph.D. '44, ADKINS) died in June, 1995. His academic career spanned 51 years, first as an instructor at Georgia Tech, then as a faculty member at Emory U. for 15 years, and finally as professor and chair at Pensacola Junior College. He retired from Pensacola in 1984. His book, "Advanced Organic Chemistry," published in 1954, was widely used in this country.

Harold Schimming

Chemistry Department business manager for many years until his retirement in 1987, died in January.





GRAPHICS BUREAU

University of Wisconsin-Madison School of Education