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Joseph S. Chamberlain

UMass Chemistry Professor 1909-1940

by Dave Adams, Senior Lecturer in Chemistry

From 1959 until 1972 the *Chamberlain Library* was an integral part of every UMass chem majors experience. Located in room 267 of the New Goessmann Laboratory, it replaced the original Goessmann Library in the Old Goessmann Laboratory, and has been subsequently replaced by the present Physical Sciences Library. This article provides a brief overview of the life and times of Professor Joseph S. Chamberlain*, the man for whom the chemistry library was named.

Early Life - Joseph Scudder Chamberlain, a descendent of farmers, was born on March 7, 1870 in Hudson, Ohio. His father, William Chamberlain, was engaged in practical farming on the family homestead. There Joseph, along with his brothers and sisters, was raised on the family farm, and, early on, discovered the important role of agriculture in life and economics. William became Ohio's Secretary of Agriculture in 1881 and the family moved to the state capitol where Joseph graduated from Columbus High School in 1887.

Higher Education - In the Fall of 1887, Joseph entered Iowa State College of Agriculture and Mechanic Arts, and received the B.Sc. in Chemistry in 1890. Coincidentally, Joseph's father, William, was president of Iowa State College during 1887-1890, the same period that Joseph was an undergraduate. After receiving his bachelor's degree, he remained at Iowa State and entered graduate studies.

Chamberlain held a graduate assistantship in chemistry at Iowa from 1890-1892. In 1892 he earned the M.Sc. degree in chemistry. He then returned to Hudson to work the family farm for two years. In 1894 he returned to his alma mater as an assistant in chemistry. He became an instructor in 1896. His teaching position at Iowa

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Gierasch moves to Biochemistry . . .

see page 4 for details.

alumni reunion '99

The reunion, held on June 5 & 6, included a reception, poster session, facility tours and a special presentation by Dave Adams to comemorate the occasion. It was a great success!

Kathy Tobiassen greeting alumni as they arrive at the reception.

Stan Shore, Professor Emeritus George Oberlander and Professor Howard Stidham

Professor Emeritus Al Wynne talking with guest about poster.

Professor William Vining on tour with alumni in the Chemistry Resource Center (CRC).

Dr. Peter Samal doing a demonstration for alumni in the General Chemistry Lab.

alumni reunion '00

Don't miss next year's Almuni Reunion - 2000 to be held June 2, 3 & 4.

alumni news

Yael Sylvia Balazs, Ph.D. '99 (Thompson lab), is doing postdoctoral work in Israel for Dr. Shimon Vega at the Weizmann Institute.

Susan Bird, Ph.D. '98 (Uden lab), is working at Pfizer in Groton, CT.

Peter Bryngelson, B.S. '97, is currently doing graduate work in Mike Maroney's lab.

Gregory Carven, B.S. '98, is currently pursuing graduate work at MIT.

Deborah Casher, B.S. '98, is currently working in the Vining laboratory as a Research Fellow.

Erdem A. Cetin, Ph.D. '96 (Lillya lab), has left Polaroid Corporation to join Aprilis Inc., a startup company formed by Polaroid scientists to create holographic data storage media devices. He joins Aprilis as a senior scientist. The CEO of Aprilis is Donald Ciapenelli, B.S. '66.

Gerry Colpas, Ph.D. '91 (Maroney lab), is currently a post-doc at Michigan State in the Microbiology Department with Dr. Bob Hausinger.

Ray D'Alonzo, Ph.D. '77 (Uden lab), is Associate Director of Procter and Gamble Pharmaceuticals in Cincinnati, OH. He continues to act as liaison between his company and the university.

Robert Deans, Ph.D. '98 (Rotello lab), is currently a post-doc at MIT.

Julie Gosse, B.S. '99, is currently in the Chemistry Ph.D. program at Cornell in Ithaca.

Michael Greaves, Ph.D. '99 (Rotello lab), is a post-doc at the University of Texas.

John Z. Gu, Ph.D. '97 (Maroney lab), is now working at Motorola BioChip Systems, Northbrook, IL.

Congratulations

Readers of these columns will recognize the name of Carl M. Allen, our oldest Chemistry alumnus. Carl celebrated his 106th birthday on January 28, 1999. He served in World War I as a member of the United States Chemical Warfare Service. On January 6th of this year, Carl received from the French government their highest national award, Chevalier of the National Order of the Legion of Honor for his role in support of French soldiers during that conflict.

John Haas, III, Ph.D. '89 (Uden lab), is with Applied Research Associates in South Royalton, VT.

David Hoffman, B.S. '80, currently at the University of Texas at Austin, was awarded tenure this past academic year together with a promotion to associate professor.

Dr. Rajdeep Kalgutkar, Ph.D. '97 (Lahti lab), has been chosen to represent UMass for the Physical Sciences Distinguished Dissertation Award at the Council for Graduate Research in Washington, DC.

Mark Kearley, Ph.D. '92 (Lahti lab), Creighton University, has just been awarded at $100,000 NIH grant, the largest grant for that university's College of Arts and Sciences in twelve years.

Shawn Kinney, Ph.D. '99 (Uden lab), has moved from Vice-President for Operations at Anika Therapeutics to President of Hyaluron, Inc.

Mihaly Kotrebai, Ph.D. '99 (Uden lab), is with the General Electric Co. in Cleveland, OH.

Lisa Lavoie, Ph.D. '99 (Uden lab), is with Chirex, Inc. in Cambridge, MA.

David Long, Ph.D. '98 (Bianconi lab), is carrying out a joint post-doc appointment

During the Fall 1999 semester, adjunct professor of chemistry *William E. Mahoney*, '55 is again offering his unique course, "The Business of Science: Industrial Practices," which consists of biweekly seminars by leaders from the chemical industry. The Spring 1997 issue of the Gazette carried a description of the course on page 5. The course received national and international attention when Bill, retired Chief Operating Officer for Witco Corp., described its nature and goals in the Jan. 11 1999 issue of Chemical & Engineering News. C&EN quotes Bill as saying. "Of all the things I am doing in retirement, this is one of the most satisfying". Aumni are always welcome to attend the lectures and the schedule can be obtained at 413-545-2291.

between Professors Tom McCarthy (PSE) and Jim Watkins (ChemE) here at UMass.

David Mazzo, Ph.D. ‘83, is Senior Vice President for Development Operations, and Mark Gelbert, Ph.D. ‘87 is Vice President of the Schering Plough Research Institute in Kenilworth, NJ.

Bryant Nelson, Ph.D. ‘96 (Uden lab), holds a position at the National Institute of Standards and Technology in Gaithersberg, MD.

Angelika Niemz, Ph.D. ‘99 (Rotello lab), is heading to CalTech this fall at a post-doc.

Michelle Pressler, Ph.D. ‘89 (Maroney lab), is currently pursuing a post-doc at Michigan State in biophysical work with Dr. Gerry Babcock.

Tom Ready, Ph.D. ‘98 (Rausch lab), is currently at North Dakota State in Fargo, ND as a post-doc in the Boudjouk laboratory.

Birgit Schwenzer, M.S. ‘98 (Bianconi lab), is pursuing her Ph.D. at the University of Constanz in Germany.

Jeffrey Slowick, Ph.D. ‘94 (Uden lab), is with Pfizer in Brooklyn, NY.

George A. Truran, Ph.D. ‘98 (Carpino lab), hastaken a position as “Laboratory Course Director” at the University of Connecticut.

distinguished alumni

On Thursday, September 30, Chancellor’s Medals were awarded to ten distinguished alumni. Among the ten was Ray D’Alonzo, Ph.D. ‘77, who is now an associate director, worldwide clinical data manage-ment, at Procter & Gamble Pharmaceuticals in Cincinnati and serves as primary contact between the company and the University. He is a charter member of the College Advisory Council for the College of Natural Sciences and Mathematics.

Andrea Ujvari, Ph.D. ‘99 (Martin lab), is currently doing post-doctoral work with Dr. Dan Hebert, and will be starting in January a new post-doc position in Cleveland.

Joyce Whitehead, Ph.D. ‘93 (Maroney lab), is on the faculty at Dickinson College in Carlisle, PA.

Jon Wilker, B.S. ‘91, is starting at Purdue University as Assistant Professor in Chemistry. Prior to this he completed his Ph.D. with Dr. Steve Lippart at MIT, and his post-doc with Dr. Harry Gray at CalTech.

Changqing (Daniel) Yang, Ph.D. ‘95 (Lillya lab), has left Cubist Pharmaceuticals to join Sigma-Aldrich Corporation as its Pharmaceutical Industry Specialist in the Fine Chemical Division.

Gierasch Steps Down to Promote the Chemistry Biology Interface: Lahti Named Interim Head

After five years as Head of Chemistry, Lila Gierasch has stepped down to explore a new chapter in her career. She has been offered the Headship of the Department of Biochemistry & Molecular Biology and is in final negotiations with the Dean over this new role. As a biophysical chemist with strongly interdisciplinary research and teaching interests, this shift of department does not represent a change of her scientific direction. Moreover, the Department of Biochemistry & Molecular Biology has launched a major new initiative to develop a stronger chemical focus in the Department. Several new faculty appointments are expected in the Department of Biochemistry & Molecular Biology in the next five years to replace several anticipated retirements. Professor Gierasch looks upon the shift to Biochemistry & Molecular Biology as an opportunity to build stronger bridges between the chemical and life sciences, an explosively developing interface area across the nation. She emphasizes that she will miss being centrally involved in the long tradition of the Chemistry Department, but that she intends to stay connected to the Department of Chemistry and all of its alumni whom she so enjoyed meeting during her tenure as Head.

Professor Paul M. Lahti has been appointed as Interim Head of Chemistry and is providing energetic and visionary leadership as the Department charts its course for the new millennium. Professor Lahti is a highly productive researcher in organic chemistry of magnetic materials and a gifted teacher. He was a recipient of one of the first College Outstanding Teacher Awards in 1994. He looks forward to interacting with all of the ‘Friends of UMass Chemistry’.

faculty *news*

Professor Scott Auerbach has received five new grants: NSF Major Research Instrumentation Program ($250,560) with Martin Weinberg, Department of Physics, for "High Performance Parallel Computing for Interdisciplinary Computational Science Center" awarded for September 1999-2002; Camille Dreyfus Teacher-Scholar Award ($60,000) for "Theory and Simulation of Molecules in Nanopores" awarded for June 1999-2002; Sloan Research Fellowship ($35,000) for "Theory and Simulation of Molecules in Nanopores" awarded for May 1999-2001 (both of these awards were given to about 20 chemists thoughout North America); Camille and Henry Dreyfus Foundation-Special Grant Program in the Chemical Sciences ($29,759) with Professor William Vining for "Teaching Materials that Matter: An Interactive Multimedia General Chemistry Course on Materials Science" for April 1999-2002, this will also be a featured courese in the Commonwealth College curriculum; National Environmental Technology for Waste Prevention Institute ($100,000) with Professor Michael Tsapatsis, Department of Chemical Engineering, for "Molecular Sieve Membranes: Microstructure-Processing-Separation Properties" awarded for July 1998-2000.

In additon, the Auerbach and Jackson Labs have finally moved into their palatial "Theory Suite" in Goessman 228, with state of the art computing and networking equipment. And, Professor Auerbach finally has moved into his new office in Goessman 222, with a lovely view and conference area.

Professor Pat Bianconi has received a Research Opportunity Award from the Research Corporation.

faculty *promotions*

Two faculty promotions have taken place since the last issue of the Gazette. Dr. Vincent Rotello, who joined the department in 1993, has been promoted to Associate Professor. Vince came to us following post-doctoral work at MIT and a Ph.D. at Yale. Some of his esearch work is described in the Spring 1997 issue of the Goessmann Gazette. Dr. Lynmarie Thompson was promoted to Associate Professor. After earning her B.S. at the California Institute of Technology, she graduate from Yale with her Ph.D. in chemistry and took a post-doctoral at MIT. Lynmarie's research involves investigation of the mechanisms by which membrane receptors transmit information across cell membranes. Among grants and awards received by both of these faculty members in support of their research are the Cottrell Scholars Award and the National Science Foundation's CAREER award.

ICMGC *award*

Robert R. Holmes, professor emeritus of Chemistry, has been chosen as the recipient of the 1997 International Council on Main Group Chemistry, ICMGC, Award for Excellence in Main Group Chemistry Research. His address entitled, "Donor Interactions of Phosphorus. Implications Regarding Enzymatic Reaction Intermediates." was given and he received the award at the 14th Annual International Conference on Phosphorus Chemistry on July 12-17, 1998 in Cincinnati, Ohio.

The ICMGC, which has its headquarters on campus, consists of approximately 250 members from around the world, selected on the basis of contributions within the field. The entire membership participates in the nomination and election of the award recipient.

Professor Bee Botch is selected as a College Outstanding Teaching Award receipient for 1999.

Dr. Justin Fermann joined the department as Lecturer at UMass-Amherst Chemistry Department Fall 1999, and is focused on teaching chemistry classes for the new Commonwealth College.

Professor Lila Gierasch, former Head of the Department of Chemistry, has been named to the Mathematical and Physical Science (MPS) Advisory Committee of the National Science Foundation (NSF). The committee advises the NSF on scientific, educational, and governmental issues that are important to NSF programs in math and the physical sciences (astronomy, chemistry, materials research, and physics). MPS awards some $715 million in research dollars earch year. Also, congratulations to Professor Gierasch for being chosen as one of this year's UMass Distinguished Faculty Lecturers.

In May 1999, Marcel Dekker released a book edited by Paul M. Lahti, "Molecular Magnetism." The book had been two years in the making since Marcel Dekker invited Paul Lahti to be the editor, due to his international reputation in this area. For more information see http://www.dekker. com/e/p.pl/1976-X.

Professor Peter Lillya will retire as of September 2002 (three years from now). During his last three years, he will be responsible for a project to adapt our homegrown web-delivered quiz and learning system, OWL, for the organic chemistry courses.

Former Chemistry faculty member, William MacKnight, has been appointed to the Wilmer D. Barrett chair in Polymer Science and Engineering effective December 1998.

At the end of May 1999, Professor Craig Martin travelled to Europe to give two talks.

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The first, at the Unité de Physicochimie des Macromolecules Biologiques Département de Biologie Moleculaire, Institute Pasteur in Paris, was "A Structural-Mechanistic Model for the Initiation of Transcription by T7 RNA Polymerase," and the second at the Centro de

NERMMW

On June 7-11, 1998, Beatrice Botch and Paul M. Lahti hosted the 4th Northeast Regional Molecular Modeling Workshop (NERMMW) in the Chemistry Resource Center in Goessmann Laboratory. This series of workshops was funded by a grant from the National Science Foundation (DUE-9554634), and consisted of an intensive four-day set of lectures, demonstrations, and hand-on labs intended to give attendees experience with a variety of computational modeling software and its use in education. Attendees are generally faculty at colleges and universities that have limited experience with computational modeling. Most attendees are from the northeastern USA, but NERMMW has also had attendees from as far away as Minnesota and Puerto Rico.

The 1998 NERMMW featured speakers, Dr. Robert Lancashire from the University of the West Indies at Mona, Jamaica, Professor Vernon G.S. Box, from City College of New York, Professor Eric Martz of the Department of Microbiology at UMass-Amherst, and Professor Paul Lahti. There were 15 registered workshop attendees and numerous visitors at the featured talks.

On January 8, 1999, the annual Molecular Modeling in the Undergraduate Curriculum Symposium was held under NERMMW auspices in the Chemistry Resource Center, featuring nine speakers and about two dozen attendees from the northeastern US region. Further information, (including attendees lists from all NERMMWs, example exercises, and software links), can be found at the workshops web site at http://www.chem.umass.edu/~nermmw.

Biología Molecular Severo Ochoa, University Autonoma in Cantoblanco, Madrid, Spain, entitled "A Structural-Mechanistic Model for the Initiation of Transcription by T7 RNA Polymerase." Professor Lynmarie Thompson also travelled to Europe at this time to give a talk at CNRS in Giffes sur Yvette. Craig and Lynmarie also visited Cayey University College in Cayey, Puerto Rico where Lynmarie presented a seminar on "NMR Studies of Transmembrane Signaling Mechanisms in Bacterial Chemotaxis Receptors." As a result, one talented undergraduate, Ariel Lebron, came to UMass to do research in the Martin lab during the Summer 1999.

Professor Ricardo Metz has received a CAREER award given by the National Science Foundation to support the work of new faculty members. He will receive $363,800 over four years for his research on the study of the structure and properties of small metal-containing molecules that serve as models for catalysts to convert methane (the major component of natural gas) to more useful or easily transportable compound.

Professor Vincent Rotello has received the following grants: National Science Foundation, "The Interplay of Recognition and Redox Processes. Electronically Controlled Devices and Surfaces," $320,000; National Institutes of Health, "Model Systems for Flavoenzyme Activity," $540,000; and, National Environmental Technology Institute, "Catalysis in Structured Media," $300,000 (with M. Tsapatsis, K. Ng, P. Westmoreland). He was also appointed to serve on an NIH

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Review panel, the "Biophysical Chemistry" study section (BBCB), July 1998-2002.

Professor Lynmarie Thompson was appointed to serve on an NIH Review panel, the "Biophysical Chemistry" study section (BBCB), July 1998-2002. In addition, Lynmarie was appointed to the Editorial Board of the Journal of Magnetic Resonance, January 1999-2001.

Professors William Vining and Scott Auerbach taught the Chem 122 class, Zeolite Explorer again, in preparation for expanding the program to a full semester of a "materials-flavored" Chem 122 that will be an important course in the Commonwealth College.

New Additions

Scott Auerbach, his wife Sarah and their daughter, Madeline, welcomed the arrival of Nicholas Steven, born at 4:15 p.m. on November 9, 1998, weighing 7 lbs. 2 ozs, and 21 inches long.

Bret Jackson and his wife, Margaret, are now proud parents of daughter, Marlene Rakas Jackson, born Saturday, October 2, 1999 at 3:27 p.m., weighing 9 lbs. and 22 inches long.

Lynmarie Thompson, Craig Martin and their daughter Laura are pleased to welcome into the world, Eric Daniel Thompson-Martin, born September 7, 1999 at 9 lbs. 1.5 oz and 22 inches long.

Beckman Scholars

Vincent Rotello, Associate Professor of Chemistry, has been named to the 2000-2001 Beckman Scholars Program advisory panel. The Beckman Scholars are an invited program to stimulate, encourage and support research activities by exceptionally talented undergraduate students who are pursuing their studies at accredited universities and four-year colleges located in the United States of America. These research activities are meant to be centered in either chemistry, biochemistry, the biological and medical sciences or some combination of these subjects.

The program is funded by the Arnold and Mabel Beckman Foundation. Rotello is one of fifteen advisory panelists invited from a list of about 150 outstanding teacher/scholar nominees at universities and colleges through the nation. Paul Lahti, the interim Head of the Chemistry Department, noted that, " this honor to Vince adds to the luster of prestigiuos national awards that he has already received. It is a recognition of his excellence as a scientist, and as an energetic promoter of research experiences for younger students. The Chemistry Department is fortunate to have younger faculty of his caliber." Rotello has been the recipient of a number of awards in recent years, including a National Science Foundation CAREER grant, a Sloan Fellowship, and a Dreyfus Teacher-Scholar Award.

preparing future faculty

Congratulations! The American Chemical Society has selected the university and Professor Julian Tyson to participate in the Shaping the Preparation of Future Science and Mathamatics Faculty program. Shaping the Preparation of Future Science and Mathematics Faculty is one of the Preparing Future Faculty programs sponsored by the Council of Graduate Schools (CGS) and the Association of American Colleges and Universities (AAC&U) and supported by The Pew Charitable Trusts and the National Science Foundation.

The department will receive $20,000 over two years to develop and implement activities that offer aspiring academics opportunities to observe and learn the full range of faculty work and career options. Together, the institutional partners at Amherst College, Hampshire College, Smith College, Greenfield Community College, and Holyoke Community College, will prepare a new generation of college and university faculty more informed and aware of their roles and responsibilities.

award von hippel

Please join us in congratulating Professor Dick Stein on his selection as this year's Von Hippel Award recipient from the Materials Research Society! The Awards Program strives to acknowledge outstanding contributors to the progress of materials research, and to recognize their exciting accomplishments.

The Von Hippel Award, the Materials Research Society's highest honor, recognizes those qualities most prized by materials scientists and engineers--brilliance and originality of intellect, combined with vision that transcends the boundaries of conventional scientific disciplines. The Award bears the name of its inaugural recipient, whose interdisciplinary and pioneering research typified the spirit of the Award. Nominations of candidates from all areas of materials research are encouraged. Selection of the recipient is determined by a vote of the MRS Council.

The Von Hippel Award includes a $10,000 cash prize, honorary membership in MRS, and a unique trophy--a mounted ruby laser crystal symbolizing the many-faceted nature of materials research. The Award is presented annually at the MRS Fall Meeting where the recipient is invited to speak.

Retirement

Ronald D. Archer, Professor of Inorganic Chemistry, retired August 31, 1999 and is now an Emeritus Professor. Ron joined the Department during the expansion years of the 1960's and served as department head for six years beginning in January of 1977. Throughout his career he has been active at the local and national levels of the American Chemical Society. Among many activities, he continues to serve on the National Council, representing the local ACS section. You can find him in 1323J Lederle Research Tower where he retains an office.

Integrated Science Building Project Approved by Trustees:

New Chemistry Teaching Labs Planned

As many of you know, the Department has been teaching undergraduate chemistry in Goessmann Laboratory for seventy-five years. Even the labs in "New Goessmann" are in dire need of renovation. Also, the Chemistry Department (as well as Chemical Engineering) has had several faculty research labs housed in Goessmann, and these are really borderline functional for state-of-the-art research. Over the past four years, the campus has confronted the challenge of upgrading the quality of the teaching and research labs in Goessmann to current standards. As part of this activity, we put together a plan for a centralized teaching laboratory that would encourage students to mix from one course to another and to share equipment. Sadly, the cost of renovating Goessmann to modern standards for laboaratory work has been deemed essentially prohibitive. Hence, in the last two years, an effort has been launched to get approval for a new building. The building proposed will synergistically address the critical needs for modern facilities for teaching and research training, and will promote the cross-talk between chemical and life sciences. We can happily report that the Trustees have approved plans for an integrated science building that will house the introductory teaching laboratories in chemistry and molecular, cellular and structural biology, computer resource centers for chemistry, advanced undergraduate level teaching laboratories, andstate-of-the-art auditoria and classrooms. Modular laboratories for research training, directed by ~30 of our the University's most promising faculty from the chemical and life sciences will create a charged environment that will stimulate the intellectual curiosity in our students. The building will be designed to promote daily interactions

between students and faculty in the chemical and life sciences in introductory teaching, in advanced undergraduate teaching, and in research labs.

Design of the new science building is based on integrative guiding principles: first, proximity of classrooms and teaching laboratories to allow integration of the knowledge gathering (lectures and classroom exercises, including computer-assisted instruction) and problem solving activities (laboratory experiments); second, use of computer laboratories to foster self-guided learning; third, encouragement of interaction between lower and upper class students by having introductory and advanced laboratories near one another; fourth, enhancing interdisciplinary perspectives in students by the juxtaposition of chemical and biological teaching laboratories; fifth, integration of undergraduate teaching and research experiences by the proximity of advanced teaching laboratories and research training space for faculty-directed work; sixth, fostering interaction among faculty and their research trainees in chemical and life sciences through research clusters; and seventh, enhancing the health and development of interdisciplinary graduate programs by providing contiguous space for their support staff, shared instruments, and seminars.

While details of the architectural design for the new building have not yet been worked out, one hypothetical scheme would involve a four-story building: The first floor would be devoted to lower level classes. It would house the introductory chemistry labs and prep rooms, small adjoining classrooms equipped with computers, centralized computer resource centers for self-paced instruction and tutoring, medium sized lecture rooms (50 to 100 students) with state-of-the-art audiovisual equipment, faculty offices and curricular development laboratories for those heavily involved in instructional innovation, and two auditoria (one 125 person and one 250 person). The second floor would be devoted to more advanced undergraduate courses. It would house the upperclass chemistry and life sciences teaching labs, shared instrumentation facilities, some shared research support space including program offices for interdisciplinary graduate programs, two small seminar rooms (20 person), and a multipurpose meeting room for approximately 50 people (for faculty meetings, graduate program activities, undergraduate research presentations, etc.). The third and fourth floors would house research laboratories where training of both undergraduate and graduate students take place. Laboratories will be modular with well-planned shared spaces for equipment and instruments, in which our students will learn first-hand how science is done using a state-of-the-art facility. The basement would house major shared equipment facilities, such as electron and light microscopes, x-ray diffractometers, and nuclear magnetic resonance spectrometers.

Site selection for the new integrated science building has been carried out, and the leading spot is adjacent to the Worcester Dining Commons, along Stockbridge Road. The anticipated cost of the building is $75 million. The Chancellor has committed one-third of these funds from campus, and efforts are actively underway to obtain the rest from a combination of federal, state, and private sources.

Upperclass courses will also benefit markedly from juxtaposing teaching laboratories for chemistry and life sciences. Students will experience first-hand that the division of these areas into sub-disciplines is no more than a useful artifact as they witness the use of shared facilities. Students from different fields will interact naturally as they come into contact. The way will be paved to enable students to pursue projects and independent lab experiments that encompass chemical and biological approaches. More senior students or students who have completed one set of courses can be enlisted to participate in peer mentoring, which has been shown to be one of the most effective modes of helping students overcome obstacles in their learning. Faculty will naturally explore interdisciplinary laboratory courses, such as bioanalytical chemistry and neurochemistry, that are not now offered, either because of space limitations or because of artificial barriers brought on by traditional Departmental and College organization.

Existing courses that will be taught in the proposed space will include all of the upperclass chemistry laboratories (organic, physical, analytical, and inorganic) and the upperclass life sciences laboratories that are molecularly oriented (biochemistry, molecular biology, biotechnology, microbiology, [and] immunology). Needs for some of these courses will differ, so that space will be appropriately designed. A particular example is organic chemistry, which requires fumehoods. Other labs will be able to be used for several courses, as does our current Microbial and Molecular Biology Laboratory suite (MMBLSS). Shared instrument rooms will demonstrate to the students that the same measurements are used in all these fields and will encourage interaction.

Lila M. Gierasch

five college chemistry seminar program

The Five College Chemistry Lecture Series is one of the longest standing Five College events. The first series of lectures took place in 1931 as the Four College Lecture Series, which changed to the Five College Lecture Series in 1972 with the founding of Hampshire College. Several of the past speakers are Nobel Laureates in Chemistry. A substantial portion of the chemistry faculty and students from the five colleges participate in this event. It is one of the major modes of interaction among the Chemistry faculty members, providing a setting for informal contact and discussion among faculty and with the distinguished chemist.

The 1998-1999 Five College Chemistry Lecturer was Prof. Peter Dervan from the California Institute of Technology, Division of Chemistry. Prof. Dervan gave a lecture where he discussed his research at the frontier of physical, biological organic and analytical chemistry. He showed how specially tailored organic molecules can be used to detect DNA sequences with high fidelity. His lecture also highlighted the human side of science: the risks in choosing ambitious projects, the difficulties in letting go of erroneous hypotheses, and the importance of diligently seeking explanations for unexpected results.

The 1999-2000 Five College Chemistry Lecturer will be Prof. Ken Houk from the Department of Chemistry at UCLA. Prof. Houk is a theoretical-organic chemist, who will be lecturing at UMass on November 30, 1999 on "Pericyclic Reactions: From Femtosecond Dynamics to Antibody Catalysis." All are cordially invited to attend this exciting seminar.

Professor Scott M. Auerbach, Departmental Seminar Chair

chemistry seminar program

The Chemistry Department Seminar program had an exciting year in 1998-1999, which included our two named seminars with corporate sponsorship raised by the Seminar Committee. The second annual "Richard Stein-Bayer Corporation Honorary Seminar in Polymer Chemistry" was delivered on September 24, 1998 by Prof. Herbert Morawetz from the Department of Chemistry at the Polytechnic University in Brooklyn, NY, the alma mater of Prof. Stein. Prof. Morawetz lectured on the "History of Rubber Research," and also provided warm insights into his long relationship with Prof. Stein. On October 8, Prof. Richard Schrock from the MIT Department of Chemistry shared his special insights on transition metals in homogeneous catalysis of polymers.

The following week, Prof. David Whitten from Los Alamos National Lab discussed the fascinating consequences of self-assembling amphiphiles for photochemistry and materials science. This lecture also celebrated the long relationship between Prof. Whitten and our own retired Prof. Bob Rowell. Later in the Fall, on November 19, Prof. Tim Swagger, also from the MIT Department of Chemistry, discussed research at the frontier of molecular electronics, using conducting polymers to make sensors from molecular wires. On October 1, our own Prof. Vince Rotello lectured on one of his favorite topics: "From Flavoenzymes to Devices: The Interplay of Recognition and Redox Processes;" and on December 3, Prof. Michael Tsapatsis in the UMass Chemical Engineering Department lectured on "Zeolite Thin Films: Fact or Fantasy."

The Spring 1999 Seminar series featured a rich mixture of visitors from universities, companies and national labs. On February 24, 1999, Prof. John Warner from the UMass/Boston Department of Chemistry gave a fascinating lecture on the theory and practice of Green Chemistry.

This was followed by the second annual "Procter & Gamble Chemistry Seminar," given on April 29 by Prof. Mark Meyerhoff from the U. Michigan Department of Chemistry. Prof. Meyerhoff lectured on the development of novel electrochemical sensors and functionalized surfaces, for use as advanced chromatographic stationary phases. This seminar also served as a celebration of P&G's gift to our bioanalytical chemistry faculty search, which culminated in the hiring of Prof. Richard Vachet.

As we look forward to more banner semesters in the Seminar Program, we thank Stacy Hunt for her untiring assistance.

Professor Scott M. Auerbach, Departmental Seminar Chair

undergraduate *student news*

Eric Styche (Chem '00), Patrick Taylor ('00), and Robert Albert (Chem '00) undergraduate members of the Paul Lahti group, garnered three of the first-ever Pfizer PREPARE fellowships in support of undergraduate research in organic synthesis. See more about the Pfizer PREPARE program below.

PREPARE

The Chemistry Department at UMass-Amherst received funding from Pfizer Inc. to support summer research experiences in synthetic organic chemistry for six undergraduate students. This funding comes through the Pfizer Research & Education Program And Recruiting Enterprise (PREPARE) program aimed at promoting undergraduate research experiences, and at introducing students to prospects for research at Pfizer. Pfizer, Inc. was rated the most admired pharmaceutical company in the world by a Hay Group survey published in Fortune magazine in 1998, and was named the Company of the Year in the January 11, 1999 issue of Forbes magazine. Pfizer is perhaps best known to the general public for the recent development of drugs such as Trovan, Zoloft, and Viagra, and is a multinational corporation with many products and interests in the areas of human and animal health care.

The 1999 PREPARE Fellowship awardees from UMass-Amherst are Rob Albert ('00), Claire Cohen ('01), Corey Coleman ('00), Eric Styche ('00), Patrick Taylor ('00), and Narissa Whyte ('01). These awardees each received a stipend to enable full-time research with a member of the graduate research faculty in the Chemistry Department during the summer of 1999. Additional money is provided through the PREPARE funding to support the expenses of research.

The PREPARE program for 1999 was kicked off by a day long visit at Pfizer's central research facility at Groton on April 6, 1999. Paul Lahti, the UMass coordinator for the PREPARE program, organized a road trip that included students from the freshman to the junior levels. Upon arrival at Groton, students from UMass-Amherst, Boston College, and SUNY-Stony Brook heard presentations by Pfizer scientists who described the long process of developing a drug from conception to marketplace. Afterwards, small groups were guided through the laboratories where pharmaceutical products are made and tested, were given explanations of the state-of-the-art equipment used for identification and isolation of these products, participated in discussions with Pfizer personnel about employment prospects at the company, and finished with a farewell barbecue on the grounds of the Pfizer's research campus. A good time was had by all, and the hospitality by Pfizer was great.

Pfizer has hired a number of UMass B.S. graduates in recent years, some of whom were among the guides that led students through the research laboratories. Dr. Brian O'Neill, the Pfizer scientist who is liason to the PREPARE program at UMass, said "We have had good experiences with hiring UMass graduates."

A mjaor educational factor sought by Pfizer and similar companies is a strong undergraduate research experience. Thanks to the support of Pfizer's PREPARE grant, the UMass Chemistry Department can offer several students a very high quality undergraduate research experience that sets an example for all students to pursue.

undergraduate *senior dinner*

Myhanh Vu, Professor Edward Voigtman, and Professor Lila Gierasch.

The first annual Senior Dinner was held on Thursday evening, May 6, 1999, at the China Dynasty restaurant. The dinner was held to honor three groups of students: all chemistry majors in the Class of 1999, award-winning undergraduate chemistry majors, and officers in the Alchemists Anonymous Chemistry Club.

The dinner was organized by Kathy Tobiassen, our Graduate Program Manager. Many excellent photos were taken by Lisa Korpiewski, our newest staff member, responsible for web and desktop publishing activities. Thanks to the efforts of Kathy and Lisa, the dinner was a success, with very good attendance by faculty and students, excellent food and drink, and pleasant conversations enjoyed by all. After the dinner itself, Professor Gierash, Head of the Department of Chemistry, made an informal welcoming speech, as did Prof. Voigtman, outgoing Director of Chemistry Majors. Then the awards were presented (or acknowledged, as appropriate): Ms. Julie A Gosse,1999, received a Certificte of Recognition for Outstanding Scholastic Achievement; Ms. Myhanh T. Vu, 1999, received a Certificate of Recognition for Outstanding Scholastic Achievement; Mr. Brian C. Weitze, 2001, was awarded the $5,500 Dreyfus Research Fellowship; Mr. Corey S. Coleman and Mr. Eric J. Styche, both Class of 2000, and Navissa A. Whyte, 2001, were awarded the $5,000 Pfizer PREPARE Fellowship.

Julie Gosse and Professor Edward Voigtman

After the awards presentation Ms. Airiel Davis, President of Alchemists Anonymous for 1998-1999, spoke to the attendees. Prof. C. Peter Lillya announced that he will succeed Prof. Voigtman (who will be on sabbatical leave) as Director of Chemistry Majors, effective for the 1999-200 academic year.

Given the success of the first Senior Dinner, we look forward to making it a new tradition, with more awards and even better attendance!

Commonwealth College

The honors program at the University is being replaced by the *Commonwealth College* which is an honors college within the University of Massachusetts at Amherst. This Fall, nearly 600 members of the entering student class joined students who had already entered the program the previous Spring. The average SAT score of our Commonwealth College students is over 1300, and they rank in the top 10% of their high school class.

The Chemistry Department prepared for the influx of these excellent students and is providing additional sections of the Chemistry for majors sequence, and others who so elect, (Chemistry 121 and 122) to enhance their first encounter with our chemistry curriculum.

Presentations

Students in Professors Lahti and Auerbach's honors courses have presented honors projects as public lectures or posters. The quality of these presentations are something in which the department takes great pride. The innovation of public presentation provides an example that could inspire other students to work at this level, and has offered an opportunity for faculty and undergraduate students to come together for mutual scientific interests. In Professor Auerbach's course the following students presented posters as noted: Kara Stamm, "LeChatlier's Principle"; Jon Halverson, "Maxwell-Boltzmann Distribution"; Erik Cameron, "p-T Relations in 3D"; Nathan Fuller, "Canonical Ensemble." In Professor Lahti's course the following were presented: Carol Ailshie, "Properties of Siloxanes Change with R Groups"; Kelly Burnhan, "How the Sea Glows"; Victoria Campbell, "Prozac: The Chemical Highway to Happiness"; Jong Choi, "INTEGRA, Artificial Skin -- a Microscopic Perspective"; Claire Cohen, "The Chemistry of Sunscreens"; Kobina Dufu, "Micelles"; Michael Freeman, "Kevlar vs. Nomex"; Johanna Friedle, "Food Preservation"; Jarrod Hanson, "The Chemical Nature of Degradable Plastics"; Laura Kapitzky, "Silcon Crystal Structure and Solar Energy Conversion Efficiency"; Rachel Leverence, "The Effect of Light on Achromycin"; Melanie McWilliams, "Olestra vs. Triglycerides: Gastrointestinal Friend or Enemy?"; Brigid O'Brien, "Teflon"; Margery Smelkinson, "Propecia"; Henry Suski, "The Specificity of Carbohydrates in Biological Organisms"; Jason Tresback, "Chemical Remedies from St. John's Wort"; Srinivas Turga, "The Electrostrictive Properties of Poly(vinylidene fluoride)"; and Brian Weitze, "The Potential of Spheres (Fullerenes)".

graduate student news

Paul Carrington, Gerard Davidson and Faizah al-Mjeni (Maroney lab) all recently presented posters at the 9th International Conference of Biological Inorganic Chemistry (ICBIC9) in Minneapolis, Minnesota, August 11-16, 1999. Carrington's poster was entitled, "Pyramidal Ni(TIM)-complexes as Models for F430"; Davidson's, "XAS investigation of the nickel containing active site of glyoxalase I from E. coli". Glyoxalase I is umbiquitous enzyme found in a variety of species that serves to detoxify alpha-keto aldehydes in cells. The enzyme from E. coli is a newly discovered nickel enzyme and this work represents the first study of the active site of the enzyme. And, Al-Mjeni's, "An X-ray Absorption Spectroscopic Structural Investigation of the Nickel Site in Escherchia coli Nik-A Protein".

Olympiad

On Tuesday, March 16, 1999, The University hosted the preliminary selection process for the 31st International Chemistry Olympiad. 298 high school students from Western Massachusetts competed for a chance to represent the United States at the Olympiad, to be held in Bangkok, Thailand, this year. Members of the team are selected from the nation's top 20 high school chemistry students. This local selection is the first step in the process. The exam, supplied by the American Chemical Society, is administered by the Connecticut Valley Section of the Society.

Although none of the local students made the team the U.S. participants were very successful, placing first at this years Olympiad. Timothy F. Jones, Alexander S. Ho and Wei Ho all received gold medals, and Lisa P. Carlivati received a silver medal in the competition. This is the first time a U.S. competitor has palced first overall in the annual competition and the first year the team as a whole has come in first since the country began competing in 1984. Congratulations!

The competition was held July 4-11 and comprised of laboratory and practical exams, each lasting five hours. Next year's Olympiad will be held in Denmark.

Robert Grosso, Jr. (Vining lab) presented a talk entitled, "A Computer Module for Teaching Crystal Energetics: The Madelung Constant" at the 1999 American Chemical Society National meeting in New Orleans on August 26, 1999. His talk focused on the Madelung constant of simple inorganic crystalline solids, in particular the sodium chloride and cesium chloride structures, and how computers can be used to teach these concepts to students. He stressed the computer's aid in showing the students visually what takes place int he crystal structure as the Madelung series is generated.

The Schering Plough Reseach Institute has established a fellowship program to support senior graduate students in analytical chemistry. The first two receipients of the followships will be Michelle Herrmann, appointed from June 2000, and Emily Yourd, appointed from January 2000. In addition in the summer of 1999, Emily completed an internship with the FBI.

Eugenio Jaramillo (Auerbach lab) won the poster competition at the 16th Meeting of the North American Catalysis Society, held in Boston during May31-June 4, 1999. He will receive an award certificate as well as $250. His poster focused on a new forcefield describing the motion of exchangeable cations in zeolites, with application to modeling selective adsorption and ion exchange properties.

Catherine McIntosh (Rotello and Gierasch labs) presented a poster at the 13th International Congress on Flavins and Flavoproteins, in Konstanz, Germany. The poster was entitled, "Supramolecular Models of Flavoenzyme Redox Processes." Also, Catherine McIntosh and Binumol James (Thompson lab) were awarded CBI fellowships.

Ken Rotondi (Gierasch lab) presented a talk at the 16th American Peptide Symposium in Minneapolis, Minnensota, August 11-16, 1999, "Investigating the Role of Turns in the Folding of a Primarily b-Sheet Protein,"and received honorable mention in the Bruce Ericson Young Investigator Award Poster Competition.

Chandra Saravanan (Auerbach lab) received a Graduate School Fellowship, given to the most promising graduate students at UMass Amherst. This paid $8,000 of his RA stipend during the 1998-99 academic year. He also completed a Graduate Research Assistantship at the LosAlamos National Lab Oct. 1998-Jan. 1999. In Jan. 2000 he will be starting a post-doc with Professor Martin Head-Gordon at University of California at Berkeley and Dr. Phillip Ross at the Lawrence Berkeley National Lab.

scholar isenberg

Kieron Faherty has received an Isenberg Scholar Award in the amount of $7,000. In 1994, Eugene M. Isenberg, Class of 1950 and currently CEO of Nabors Industries, Inc., one of the world's largest drilling contactors, established awards to aid UMass students who demonstrate academic merit and a commitment to the integration of science or engineering, and management. Eligability is based on studying in departments of the College of Natural Sciences and Mathematics, College of Engineering, or Isenberg School of Management. The applicants must have successfully completed at least one semester of graduate study with a grade point everage of 3.2 or better.

The award receipients were honored with a banquest at the Isenberg School of Management on April 14, 1999. Congratulations!

research symposium & *poster competition*

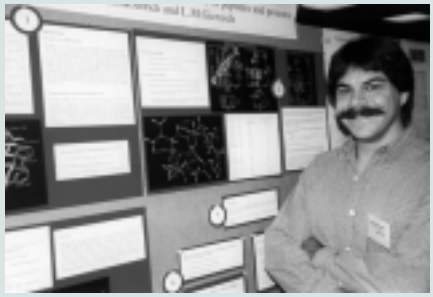
On Monday, December 7, 1998, the 10th Annual Chemistry Department Research Symposium & Poster Competition was held. The event featured five graduate student speakers and nearly forty poster presentations, which demonstrated the dynamic range of research being conducted in the Department.

Eugenio Jaramillo, a graduate student in the lab of Professor Scott Auerbach, presented *New Force Field for Cations in Dry Zeolites*. Zikri Arslan, directed by Professor Julian Tyson, discussed *Determination of Trace Elements in Seawater by Inductively Coupled Plasma Mass Spectrometry with On-line Matrix Elimination and Preconcentration with Chromosorb 102 Resin*. *Chelation and Stereochemistry Effects on the Reaction Kinetics of Europium(III) Shiff-Base Complexes* was presented by Karen Hatwell, a student of Professor Ronald Archer. The lab of Professor Ricardo Metz was represented by John Husband's talk, entitled *Photofragmentation studies of* FEO^+. Angelika Niemz, a member of the lab of Professor Vincent Rotello, addressed *Electrochemical Control of Recognition Processes*.

Faysal Ilhan describes his work to Professor Tom Whelan.

Dr. Paul Drummond presents award to Trent Galow.

Posters were presented by both undergraduate and graduate students, and awards were granted for the best presentations. The George R. Richason Award for Excellence in Undergraduate Research was presented to Deb Casher, representing the work of the Vining lab, for *Educational Software for Organic Chemistry Students*. The Paul Drummond Award for Excellence in Graduate Research went to Trent Galow, from the Rotello lab, for *The Interplay of Redox and Recognition: Metallocene-Functionalized Receptors*. Faysal Ilhan, also from the Rotello lab, received the Louis Quinn Award for Excellence in Graduate Research; his poster was entitled *Plug and Play Polymers*. The highest prize, the William McEwen Award for Excellence in Graduate Research, was bestowed upon Kenneth Rotondi of the Gierasch lab for *Early Folding Events in β-structure: A Tale of Peptides and Proteins*.



Ken Rotondi with his award-winning poster.

At right, Professor Scott Auerbach, Willim Vining and Lila Gierasch discuss educationl software.

The 11th Annual Chemistry Department Research Symposium & Poster Competition will be held on Monday, January 25, 2000.

degrees *awarded*

Bachelor's Degrees

Anderson, Sean K.	Hebron, CT	5/98
Arsenault, Edward W.	Revere, MA	5/98
Blanchette, Keven M.	Cranston, RI	5/99
Briggs, Timothy F.	E. Brookfield, MA	2/98
Bryngelson, Peter A.	W. Boylston, MA	9/97
Brzoskowski, Marek	Acton, MA	5/98
Cabral, Shawn	Somerset, MA	5/98
Carven, Gregory J.	North Andover, MA	5/98
Casher, Deborah L.	Amherst, MA	5/98
Dinsmore, Robert C. III	N. Andover, MA	5/99
Fealy, Brian E.	Bridgewater, MA	5/99
Georges, GeorgeT.	Andover, MA	5/98
Gosse, Julie	Wilmington, MA	5/99
Grajko, Ivonne M.	W. Springfield, MA	5/98
Green, Joffre A.	Lakeview, NY	5/99
Gulati, Rebecca A.	Winchester, MA	5/98
Joy, Rachel	Northampton, MA	5/99
Kan, Jason J.	North Falmouth, MA	2/98
Kaufmann, Andrew H.	Burlington, MA	9/97
Keenan, Christopher J.	Abington, MA	2/98
Kerr, Douglas P.	Amherst, MA	5/98
Khorasanizadeh, Sadaf	Amherst, MA	5/98
La Perle, Christopher M.	Hubbardston, MA	5/99
Le, Nhan N.	N. Quincy, MA	5/99
Lewis, David R.	West Newton, MA	5/98
Makowski, Amy B.	Belmont, MA	5/98
Marsh, Peter J.	Shrewbury, MA	5/99
Medjanis, Gabriel	Harvard, MA	5/99
Mohimen, Anirban	Allston, MA	2/99
Nguyen, Peter T.	Chelsea, MA	5/98
Nguyen, Uyen Anh	Roxbury, MA	2/99
O'Connor, Kristof L.	Belmont, MA	2/99
Ramli, Adlan	Sunderland, MA	2/99
Rodrigo, Jason M.	Ludlow, MA	5/98
Rutenberg, Sergei Z.	Needham, MA	5/99
Sill, John E.	Sandwich, MA	5/98

Master's Degrees

Faherty, Kieron	5/98
Gibb, Julie	9/98
Houle, Thomas	9/98
Jaramillo, Eugenio	5/98
Kotrebai, Mihaly	5/98
Kwak, June Y.	9/97
Liao, Yi	9/97
Liu, Peng	2/98
Liu, Yanbing	9/97
Neal, Suzanne	2/99
Rhodes, Barrie	5/99
Schwenzer, Birgit	9/98
Spaziani, Michelle A.	9/97
Sundari, Joysula	9/97
Tepe, Reha	9/97
Thomas, Emma Jane	5/99
Xie, Chunping	9/97

Ph.D Degrees

Balazs, Yael Sylvia	5/99
Bird, Susan Mary	9/98
Bishop, Richard J.	2/99
Blais, Matthew S.	2/98
Breinlinger, Eric C.	9/98
Deans, Robert	9/98
Ellis, Robert I.	2/98
Figlar, James M.	2/98
Fitzgerald, Neil	2/99
Fu, Fen-Ni	9/97
Gonzalez, Angela M.	5/99
Greaves, Michael D.	2/99
Gurge, Ronald	5/98
Hardas, Nitin	2/98
Kalgutkar, Rajdeep S.	9/97
Kerr, Peter A.	9/97
Long, David Pearson	9/98
Mercado, Ramil-Marcelo	2/99
O'Donnell, John M.	2/98
Ready, Thomas	2/98
Sherlock, David	2/98
Sood, Paul	2/98
Swanker, Susanne T.	9/97
Tepe, Reha	2/99
Truran, George A.	5/98
Ujvari, Andrea	2/99
Walton, Richard	5/98
Xia, Jusong	2/99
Yezek, Lee P.	2/99

departmental *departures*

Laura Botch, bookkeeper, returned to her home in the mid-west, where she is pursuing her career in web design and computer graphics.

Donna Huntington, receptionist and seminar coordinator, accepted a position in the Entomology Department at UMass.

Nancy Lattinville, payroll coordinator and undergraduate assistant, secured a post in the Office of the Dean of Natural Science and Math.

Sarah Stradley, Director of Operations, has left the Chemistry Department and returned to the Delaware-Maryland area, where her family resides. Sarah has obtained a position with AstraZeneca, a pharmaceutical company in Delaware, where she will handle all major lab equipment purchases as well as coordinate large instrument purchases with their other research sites.

departmental arrivals

Victoria De Carli has taken over the duties of Business Manager for the Chemistry Department.

Marvin Ellin has taken over the responsibilities of Operations Manager.

Stacy Hunt is the new Chemistry Department receptionist and Seminar Coordinator.

Lisa Korpiewski, in a recently created position, is the Department's Web Page/Publications designer.

Marie Whalen has joined the staff, assuming responsibility for payroll, registration, and other administrative support functions.

david adams

The Department of Chemistry welcomes back alumnus David Adams (B.S. Chem. '67, magna cum lauda) as a faculty member starting this fall. Adams comes to UMass from Babson College, where he was associate professor of chemistry and Director of Natural Sciences. Dave spent a sabbatical semester with us during Spring '98 and his continuing work in the departmental history and his teaching in the large non-major organic course were very highly commended by faculty, colleagues and students. His return to UMass-Amherst continues his 27 year career of teaching chemistry, during which he has become a member of a number of professional organizations, including the New England Association of Chemistry Teachers, the National Science Teachers Association, the American Association for the Advancement of Science, and both the American Chemical Society and the American Physical Society. Among other recognitions and honors of his abilities as an teacher and instructor, he was recognized by a Governor's Citation for Performance Recognition in 1984, while he was an Associate Dean of Academic Affairs at North Shore Community College.

Adams also is continuing his research on the history of the Chemistry Department at UMass-Amherst. He has a large collection of data and photographs from earlier days of the department, to which he is constantly looking for interesting additions. Paul Lahti, the interim Head of the Chemistry Department, noted, "It is unusual to have a faculty member who not only is a superb instructor of chemistry at the modern level, but who also has a tremendous appreciation and enthusiasm for the development of chemistry from the past days of our very own department. We are very fortunate and pleased to welcome Dave back to UMass."

igor kaltashov

We would like to welcome one of our newest faculty members, Igor A. Kaltashov. Before coming to us he completed his postdoctoral research at Johns Hopkins University School of Medicine, having received his Ph.D. in chemistry from the University of Maryland Baltimore County and his master's degree from Moscow Institute of Physics and Technology. The research in his group is focused on bioanalytical applications of mass spectrometry. Two projects are currently underway: (a) developing mass spectrometry-based strategies to study higher order structure and folding dynamics of proteins, and (b) design of novel affinity-capture interfaces for mass spectrometry and structural analysis of bacterial glycolipids.

Protein architecture and folding dynamics: We are seeking to further our understanding of the dynamics of the folding process, as well as conformational stability of proteins and protein-ligand complexes. We are using electrospray mass spectrometry to study folding processes in vitro. Hydrogen/deuterium exchange in solution is used to probe the conformational stability and folding/unfolding dynamics of proteins under various conditions. We also plan to extend our studies to include chemical cross-linking as a means to elucidate the topology of ligand binding sites in proteins, as well as inter-domain interactions in multi-domain proteins.

Bacterial glycolipids and affinity-capture mass spectrometry: The major goal of this program is to develop a rapid, reliable and practical detection method for microbial agents found in food and clinical samples. We are designing a detection method that combines the strengths of affinity separations and analytical capabilities of mass spectrometry. Mass spectral analysis of specific biomarkers (glycolipids from bacterial cell membranes) will produce taxonomically relevant information on detected bacteria, while affinity separation step will enable us to handle samples within complex biological matrices.

richard vachet

We would like to introduce one of our newest faculty members, Richard W. Vachet. He completed his postdoctoral research at the Naval Research Laboratory before coming here, his Ph. D. in Analytical Chemistry at the University of North Carolina, Chapel Hill, and his B. S. in Chemistry at the College of William and Mary. Richard describes his research program below:

The research in my group is focused on developing analytical techniques to provide complete structural characterization of biologically important trace metal complexes. Our attention is directed to two specific areas: (1). understanding the acquisition and utilization of transition metals by phytoplankton and (2). identifying the biological ligands involved in the complexation of important transition metals.

Certain transition metals, such as Fe(III), are essential nutrients for phytoplankton; however, the ligands that keep Fe(III) soluble for eventual acquisition by phytoplankton are unknown. We plan to identify these ligands which should provide insight into the ways in which phytoplankton acquire such nutrient metals and, in some cases, toxic metals (e.g. Cu(II)). These metal complexes are at very low concentrations in oceanwater (~ 1nM), so analytical techniques that are very sensitive and can provide structural characterization capability are needed. The technique that has these attributes is mass spectrometry (MS). MS will be the centerpiece of the analysis, and novel modes of operation will be developed to structurally characterize metal complexes. Development of such a technique should also provide a means of identifying the peptides and proteins involved in shuttling important transition metals throughout biological systems.

dhandapani venkataraman

Another of our newest faculty members as Dhandapani Venkataraman (DV). Before coming to us he completed his postdoctoral research at Cornell University and the Unversity of California at Berkely, his Ph.D. in chemistry from the University of Illinois, Urbana-Champaign and received his bachelor's degree from the University of Madras, India, and his master's degree from the Indian Institute of Technology, also in Madras.

The focus of research in his group is centered around materials chemistry. At present, we are interested in: (a) developing strategies to control solid-state structures, and (b) the design and synthesis of polymer-inorganic composite materials.

Control of Solid State Structures: Our approach to obtain two- and three-dimensional solids by controlling the solid state organization would be to draw upon the tools of 'crystal engineering'. In particular, we are interested in investigating intermolecular interactions such as charge-transfer and disulfide bonds to develop interesting electronic and porous materials.

Polymer-Inorganic Composites: Catalysts play a pivotal role in synthetic chemistry. The focus of research in the field of catalysis has largely been to obtain selectivity in reaction and in products that are comparable to one of Nature's catalysts, enzymes. Unlike synthetic catalysts, enzymes have a unique and remarkable ability to precisely regulate their catalytic activity. An interesting self-regulating, synthetic catalyst can be designed. Toward this goal, we are interested in the design and synthesis of composite materials based on catalytic mangenese-salen complexes and stimuli-responsive polymeric gels.

Bioanalytical Initiative and Symposium

A symposium was held on Friday October 1, 1999 to mark the successful establishment of the Chemistry Department Bioanalytical Initiative and the support of the University, Corporate Sponsors and Alumni for its continued development.

Beginning in 1998, a group of departmental alumni have initiated and supported a Bioanalytical Initiative aimed to develop an industrial support base for developments in the department. Seven companies, Beckloff Associates, Hoechst Marion Roussel, Merck, Pfizer, Procter & Gamble Pharmaceuticals, Rhone Poulenc Rorer and the Schering-Plough Research Institute have provided the initial impetus behind this venture and it is anticipated that they will be joined by others in the future. Together, they have provided almost $200,000, directly or in pledges over some years. Our original goal for the initiative is $500,000 and as pleasing as is the progress made, there remains a way to go. There is no doubt that pharmaceutical and biotech companies are exploring ways to support universities such that they will continue to supply the scientific developments and manpower needed to support the industry. Cash is an obvious route for programmatic support, but there are many other ways as well. Internships, industrial sabbaticals, focused instruction and training and specific project collaboration and support all come to mind.

From left to right: *Professor Peter Uden, Professor Richard Vachet, Dr. Terrence Tougas of Boehringer Ingelheim Pharmaceuticals Inc., Mr. Ed Szczenyof Pfizer Corporation, and Dr. David Mazzo, Senior Vice President of Schering-Plough Research Institute.*

The initiative has already born fruit in that it has contributed to the funds available for the recruiting of two faculty members this year. Richard Vachet has just joined the faculty in response to our search for a bioanalytical chemist and Igor Kaltashov will join us in January 2000 in response to the search for a mass spectroscopist. Both are vitally concerned with mass spectroscopy and both have major involvement with bioanalytical chemistry. This development in mass spectrometry is a strength upon which to capitalize with respect to the Bioanalytical Initiative.

Professor Richard Vachet presents an overview of his research interests.

Richard Vachet has just completed a post-doctoral appointment at the U.S. Naval Research Laboratory in Washington DC and holds the Ph.D. from the University of North Carolina-Chapel Hill where he worked with Gary Glish on using MS for sequencing peptides and proteins. Igor Kaltashov did his Ph.D. work with Catherine Fenselau at the University of Maryland -Baltimore and post-doctoral work at Johns Hopkins with Robert Cotter. He worked on a number of projects involving MS structural analysis of biomolecules and MS kinetic studies of their various physical properties.

In the symposium, keynote remarks were made by David Mazzo, (UMass Ph.D., 1983) Senior Vice-President, Schering Plough Research Institute. He and Ray D'Alonzo (UMass Ph.D. 1977), Associate Director, Procter and Gamble Pharmaceuticals, were key leaders of the industrial support group. The programs of Richard Vachet and Igor Kaltashov were outlined and the Polymer Science/Chemistry Mass Spectroscopy Facility was showcased.

Research seminar presentations were made by graduate students; Michelle Herrmann - Mass Spectral Determination of Gram Negative Bacteria; Ann Siripinyanond - Field Flow Fractionation - Elemental Speciation of Biomolecules; Nigel Metcalfe - Chromatography in Neonatal Nutrition and Clinical Studies; Rameh Hafezi - Biological Selenium Speciation for AntiCancer Activity Study; Zikri Arslan - Trace Element Determination and Speciation in the Maine Food Web; Shawn Kinney - Analytical Chromatography of Hyaluronic Acid.

Check us out on the web . . .

. . . www.chem.umass.edu

In the Spring of 2000 look for our newly designed web site. Also, check out the College of Natural Science and Mathematics at www.nsm.umass.edu.

In Memoriam

George W. Cannon 1917-1999

Many of you will have indelible memories of Prof. George Cannon elucidating the intricacies of organic chemistry in clear precisely-delivered lectures in Goessmann Auditorium or Goess 152. He needed no technology, overheads or computer projections of PowerPoint slides to fill three chalkboards with beautifully crafted formulas in record time. One student was heard advising another to bring two pencils because if you dropped one, you would miss a page of notes while you picked it up. The door to George's office, Goess 244 was always open, and much of the time he could be found conferring with one of his students. His commitment to teaching is summed up by his response to his car failing to start before an 8 AM lecture. He ran from his home in Hadley to Goessmann Laboratory and delivered the lecture on time. In 1969, George was one of the earliest recipients of the University's Distinguished Teacher Award for "manifest excellence in the art of teaching and outstanding devotion to the cause of education." When he profiled his teaching for the University news bureau, he listed every organic chemistry course, short of specialty courses, taught at UMass.

George was induced to leave the Rohm and Haas Company to teach at the University in January 1949 by Prof. J. Harold Smith and his colleagues, who recruited faculty to lead the Department into the modern era as UMass grew into a major research university. Born in Dickey, North Dakota, George earned a B. A. degree at Dakota Wesleyan University and then moved east to the University of Illinois where he earned the Ph.D. degree in chemistry in 1943 working with H. R. Snyder. His eastward momentum carried him to Rohm and Haas in Philadelphia and finally to Amherst. His first publication appeared in the Journal of the American Chemical Society in 1942 and described "A convenient Synthesis of D,L-Methionine". His last in 1966, "The Circular Dichroism of Some Trimethylbicyclo[2.2.1]heptan-2-ones, in collaboration with Prof. R. C. Cookson, was the fruit of a 1960-61 sabbatical leave spent at University of Southampton in England. This was one of the coldest winters in England for decades, and George spent a lot of time finding enough coal to keep the Cannon family from freezing. An abiding interest of George's , conjugative interactions of cyclopropane rings, can be found in the titles of his publications and in the theses of the 24 Ph.D. and MS. students he mentored.

George Cannon was the founder of research and graduate education in organic chemistry at UMass in the modern era. During his tenure he guided 24 students through their research to graduate degrees. The first, Charles J. Wiley, earned his MS in 1949, the last, Wen-Chung Lin and Albert Nelson earned PhD's in 1977. He led the Department's graduate program as Director for the entire decade of the 1960's and into the 1970's.

In the course of his active professional life, George was a member of the American Chemical Society, and the honorary societies Phi Beta Kappa, Pi Kappa Phi, Pi Kappa Delta, Pi Lambda Upsilon, and Sigma Xi. He was a skilled craftsman and clock maker and an avid and sophisticated appreciator of music. To mark his retirement, the Department gave him a portable workbench. He was an active member of Wesley United Methodist Church where he served as trustee for many years. George and Lois Cannon were parents of three children who grew up in Hadley and there are ten Cannon grandchildren. Lois continues to live on Rocky Hill Road in Hadley, the starting line for George's epic run.

In his quiet way, George Cannon touched the lives of thousands of students and made essential contributions to the growth of this Department. The pleasure of being his colleague came partly from his high ability and standards as a scientist and teacher. But it derived mainly from his modest and humane character. He could correct the most egregious error without making a student feel rebuked, and was constantly concerned for and helpful to junior faculty. If I asked George for advice, I could count on hearing what was good for me and the Department and not what was good for George. His example set a high bar to clear, but he inspired you to try. I occupy George's last office in the Lederle Graduate Research Tower, but no more that any of my fellow faculty can I replace him as a scientist, teacher, and colleague.

Peter Lillya

We have received notification from Steven Gaines that his father, **Walter A. Gaines**, B.S., 1950; M.S. 1952 passed away last year.

Elizabeth Wesnacawicz passed away Friday, October 1, 1999. Elizabeth was a laboratory technician with the department for many years, most of the later of which were spent assisting with the organic chemistry teaching laboratories in the LGRT. She worked hard for the department for many years, retiring in 1993.

Chamberlain ...
continued from page 1

included long winter breaks. During these breaks, he enrolled at Johns Hopkins University in Baltimore and took advanced courses in chemistry. Finally he left Iowa and obtained a scholarship as a full-time student at Johns Hopkins in 1897.

Chamberlain pursued research at Johns Hopkins under the direction of Professor Ira Remsen, the acknowledged leader of academic chemistry in the United States at that time. Chamberlain's doctoral research involved a study of the products formed when heating parasulphaminebenzoic acid to 220 degrees. This research was an outgrowth of Remsen's earlier work on sulfoimide formation via dehydration of sulfamoylbenzoic acids, which led to the discovery of saccharin. Chamberlain received his Ph.D. degree in organic chemistry in 1899 with minors in biology and geology.

Oberlin College - In the fall of 1899, Dr. Chamberlain secured a position as assistant in chemistry and physics at Oberlin College in Ohio. His first teaching assignment after earning his Ph.D. must have been both exhilarating and chaotic. It covered a broad spectrum of courses including mechanics and sound, light and heat, electricity and magnetism, general inorganic chemistry - non-metals, general inorganic chemistry - metals, qualitative analysis and quantitative analysis. Oberlin had only two chemistry instructors at that time - Chamberlain and Frank F. Jewett. Several years earlier, Jewett reportedly suggested to his students, including Charles Hall, that a method for cheaply winning aluminum metal from its ore might be worth investigating!

During the summers of 1900 and 1901 Chamberlain volunteered to work at the Middletown, Connecticut laboratory of Wilbur O. Atwater. Atwater was a leader in developing agricultural experiment stations and demonstrating their value to farmers. This brief taste of agricultural chemistry served to meld Chamberlain's long-time interests - farming and chemistry. In the fall of 1901, he combined these interests into a full-time career.

United States Department of Agriculture (USDA) - Chamberlain worked at the USDA from 1901 to 1909. During this time he was assistant chemist and chemist with the Bureaus of Plant Industry and Chemistry. He served as Chief of the Cattle-Food and Grain Laboratory in the Bureau of Chemistry from 1907 to 1909. Chamberlain published several bulletins and papers during his stay at the USDA. One particularly important contribution, published in 1906, was his research on the constitution of wheat proteins. (A full list of his publications is available from the author.)

In November 1908, Chamberlain received a leave of absence from the USDA and enrolled as a student at the University of Berlin working in the laboratories of the physiological chemist, Emil Abderhalden. Chamberlain effectively devoted his time in a post-doctoral position of advanced study and research. While still in Berlin, he was offered and accepted a position at the Massachusetts Agricultural College as associate professor of chemistry.

Massachusetts Agricultural College (MAC) - When Charles A. Goessmann retired in 1907 it was clear that the college needed a successor to carry on its work in agricultural chemistry. Joseph Scudder Chamberlain was to be that person. In the

summer of 1909, President Butterfield of MAC proudly announced that Dr. Chamberlain had accepted the position of associate professor of chemistry in the department of general and agricultural chemistry. Chamberlain was at last able to combine his three major interests - agriculture, chemistry, and teaching. Professor Chamberlain, then age 40, was recommended for the position by three eminent chemists - Johns Hopkins University Professor Ira Remsen, editor of the *American Chemical Journal*; University of Illinois Professor William A. Noyes, editor of the *Journal of the American Chemical Society* from 1902-1917, and *Chemical Abstracts* from 1907-1910; and USDA Bureau of Chemistry Chief Harvey W. Wiley.

In his first few years at MAC Chamberlain developed and taught a wide variety of chemistry courses. These included organic chemistry, agricultural chemistry, physiological chemistry (both vegetable and animal), organic agricultural chemistry, elementary organic (for non-classified students), and the history of chemistry, at the undergraduate level. At the graduate level, he taught advanced organic preparations, elementary and advanced biochemistry, industrial organic, organic, and research organic chemistry.

From 1909 until fire struck on September 6, 1922, chemistry courses were taught in an old, dilapidated, and inadequate building on the MAC campus. (See the article "The Goessmann Chemistry Laboratory" in the Spring, 1998 edition of the *Goessmann Gazette*) Chamberlain was intimately involved in the resurrection and modification of the old chemistry lab to accommodate the new courses. When the old chem lab burned to the ground, it was Joseph Chamberlain who risked his life entering the burning

1935 Chemistry Department Staff
Left to right: Dr. Edward B. Holland, Dr. Walter S. Ritchie, Dr. Joseph S. Chamberlain and Dr. Charles A. Peters; John L. Sullivan, Robert Buck, Dr. Monroe Freeman, Dr. Richard W. Fessenden and Prof. Ernest Parrott; Professor Carlton P. Jones and Dr. Emmett Bennett

building to rescue the $800 chemistry supply order received the previous day. Chamberlain and other Mass Aggie chemists also rescued the library books, exams, and research notes from the fire right up to the final moments when the building began to collapse.

Chamberlain was officially appointed chemistry department head in 1928 and served in this capacity until 1934. Even prior to his official appointment, Chamberlain was regarded as the unofficial leader of the department. In 1934 he was appointed the second Goessmann Professor of Chemistry at MAC (the first was Joseph B. Lindsey - 1911 to 1934; the current is Richard S. Stein, 1980 to present), a title he held until his retirement on July 1, 1940. At that time he became Emeritus Professor of Chemistry.

During the 1930-31 academic year, Chamberlain spent a sabbatical leave at the University of Oxford in England. He worked for Professor Robert Robinson, who later became Sir Robert Robinson and received the Nobel Prize in Chemistry in 1947. While in Robinson's laboratory, Chamberlain made

breakthrough contributions in the synthesis of hydrastine, a plant alkaloid once used as a hemostatic agent and an antiseptic.

After turning the department over to Walter Ritchie in 1934, Chamberlain was able to devote more time to research. His research centered on the use of Grignard reagents in the synthesis of substituted triphenylcarbinols, and enolate condensation reactions to make substituted barbituric acids.

Professional Activities & Honors - Professor Chamberlain was more than active in professional chemistry organizations; he was a pioneer and leader. He joined the American Chemical Society (ACS) in 1899 while at Oberlin College. He belonged to the Chemical Society of Washington, serving as its President in 1908. Within months after moving to Amherst in September of 1909, he became a charter member of a fraternal group of New England chemists dedicated to the betterment of chemical education through an exchange of views, ideas and experiences. The seven founding members of this group held their first meeting in the Hotel Draper in Northampton, MA on February 4, 1910. In 1916 the club was named the Ouroboros Club, a name which it has to this day.

Chamberlain was also involved in chemistry at the national level. He was chairman of the Connecticut Valley Section of the ACS from 1920 to 1922. He served as councilor to the ACS from the Connecticut Valley Section for many years in the 1920's and 1930's. Chamberlain joined the New England Association of Chemistry Teachers (NEACT) in 1922, typifying his interest in the particular problems associated with high school-college education coordination. Chamberlain also advocated for the primacy of chemical knowledge as a requirement for

chemistry teachers. Although this point may seem obvious, it was in the 1920's and 1930's that "methods" courses were becoming viewed as equally important with disciplinary knowledge in the training of teachers. His contributions to this group earned him election as president from 1928-1930. He was voted an Honorary Member in 1935 for his meritorious service.

The ACS's Division of Chemical Education was formed in 1921. The main agenda item for this new section was to establish an organized direction for chemical education for the United States. Toward this end, in 1925, the ACS formed the Senate of Chemical Education. Its members included representatives from each state. Joseph Chamberlain was a representative from Massachusetts for the entire existence of the Senate, which was disbanded in 1935 when it had accomplished its original mission.

Chamberlain was also involved in the ACS's History of Chemistry Division. He was among the members present at its first meeting in Rochester, NY on April 27. His interest in the history of chemistry continued in his teaching assignments at the Massachu-

setts Agricultural College where he taught a course on this topic.

Chamberlain received many honors throughout his professional career. To him, the most meaningful were those bestowed by his peers and students. He was elected to Honorary Membership in the New England Association of Chemistry Teachers for his work with that group. The students at the Massachusetts Agricultural College dedicated their yearbook, *The Index*, to Chamberlain in 1925. The students wrote in that volume, "To Dr. Joseph Scudder Chamberlain, whom we respect and esteem as a professor, of ability, a hard worker for the college, and a true friend; the class of 1925 dedicates this volume".

In 1936 members of the chemistry class of 1937 planted two ceremonial maple trees in front of the Goessmann Chemistry Laboratory on the Massachusetts State College campus to honor Dr. Chamberlain and Dr. Lindsey. The tree dedicated to Professor Chamberlain still grows to the right of the main entrance to the laboratory.

Chemistry Textbooks - Chamberlain wrote three textbooks during his career. The first, published in 1916, was titled *Organic and Agricultural Chemistry*. The second, *A Textbook of Organic Chemistry,* first published in 1921, resulted in three editions, the last in 1934. In the second edition published in 1928, Chamberlain added a unique contribution. He cited references to laboratory preparations and reactions found in popular works such as *Chemical Synthesis* that illustrated the theory in the textbook. (Copies of these two texts are currently displayed in the cabinet outside Goessmann 267.) His third contribution, co-edited with Charles A. Browne, was titled *Chemistry in Agriculture*.

Personal Life - Chamberlain separated his personal and professional lives. He did not discuss his personal life except with persons of long-standing acquaintance. He married Mary Cole Braun on June 23, 1903 and had one daughter, Lucy Marshall. His daughter later worked for the Bath, Maine public health department. He and his family resided at 407 North Pleasant Street in Amherst and spent the summers at Sand Beach in Stonington, Maine. A distinguished looking man, Chamberlain usually wore formal suits with a waist coat watch. His stocky and small stature (about 5'3") earned him the nickname "Shorty," although not in his presence!

After retirement in 1940 he moved to Baltimore, Maryland, his wife's hometown. He lived there until his death on May 13, 1953. Toward the end of his life he resided in the Melchor Nursing Home in Baltimore, where his occupation was modestly listed as "retired teacher".

*A more detailed, documented version of this article appeared in *the New England Association of Chemistry Teachers Journal*, Volume 17, pages 4-9, 1998.

A special thanks to Bert Holland, B.S. Chem '28 and the W.E.B. Du Bois Library Special Collections and Archives for the photos used in this article.

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We want to know what you have been doing. Send news of your activities, promotions, new positions, etc. to include in the next issue of the Goessmann Gazette. You can also send information via email at gazette@chem.umass.edu. We look forward to hearing from you!

Dear Friends,

It has been another busy year for the department. Four new faculty joined or committed to join Chemistry in 1999. This is a reflection of confidence in our future, both by the university through its commitment of resources, and by these faculty through their choosing us over other excellent schools that are hiring. This hiring upsurge was enhanced by a consortium of pharmaceutical companies that provided $186K to promote bioanalytical research. Our alumni at these companies were crucial in raising this outside funding. We are very grateful for their support!

Departmental faculty had a fabulous year of awards and recognition. Members of our faculty brought honor to the department with a NSF Career Award, a Sloan Fellowship, *two* Dreyfus New Faculty awards, a Dreyfus Teacher-Scholar Award, a College Outstanding Teaching Award, and a UMass Teachnology Fellowship in just over one year! These are just some of the high points demonstrating the upward trajectory that we aim to maintain in the next millenium.

As we look forward to the future with anticipation, we also can better appreciate the past upon which we are building, thanks to the work of new faculty member and UMass Chemistry history buff David Adams. Dave has a fascinating array of pictures and stories about the department's past, and is always interested in new ones. Please stop by and share yours with us!

As you can see, our alumni and alumnae are invaluable assets to department and university. Many of you continue to be generous of time and money, providing much needed funding and support for graduate student work, seminars, and curricular innovation. We are very grateful to our "Friends of UMass Chemistry". As the new head of the department, I look forward to a chance to see or hear from you. Come visit us and help us make it happen at UMass!

Sincerely,

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