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## UMASS AMHERST CHEMISTRY IS IN THEIR BLOOD

by Susan Alston and Scott Auerbach

When it came time for *Michael Levine* to choose a college, there was really only one choice: UMass Amherst and its Department of Chemistry are in Michael's blood. Like Michael's father and grandfather, *David and Richard Levine*, Michael understood that the education and research opportunities in Chemistry at UMass Amherst are too good to pass up.

### *Richard Levine: 1945-1948*

Richard Levine was seventeen when he entered the Massachusetts State College in Amherst. It was the summer of 1945 and the war had just ended. Looking back, Richard remembers an idyllic time. He took English courses in the Chapel.



Daniel (grandson), Richard, Jason (grandson) and Robert (son) Levine ('85, BBA)

... continued on page 15

## GIFT ESTABLISHES GEORGE RICHASON LAB FUND

by David Adams and Scott Auerbach

In the Fall of 1933, at the height of the Great Depression, **George Robert Richason Jr.**, then a 17 year old from Gill, Massachusetts, enrolled as a freshman chemistry major in the Massachusetts State College (MSC) in Amherst. Today, in 2004, George remains dedicated to Chemistry, Amherst, and UMass. In the intervening seventy-one years, he has made numerous, legendary contributions to his alma mater and its Chemistry Department in the realms of teaching, athletics, alumni affairs, building design, curriculum development, and advisement. In recognition of these prodigious efforts, and of this unique person, the Chemistry Department has recently announced the establishment of the **George R. Richason, Jr. Laboratory Fund**. This Fund has received an initial gift of \$10,000, and additional pledges in excess of \$15,000. Our goal is to raise at least \$250,000 before the official naming. We will celebrate the establishment of this fund at the reunion in June 2004.



Professor George Richason preparing for class circa mid 1960s.

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# alumniREUNION 2003

Alumni weekend was celebrated on June 6-8, 2003. Activities in the Chemistry Department were held on Saturday afternoon, June 7, 2003. Refreshments were served in Goessmann 252 which was open all afternoon



Alumni shares fond memories with Professor Peter Uden.

for socializing. Alumni departed from there to attend lectures and view facilities and laboratories. Professor David Adams demonstrated teaching techniques in the computerized lecture room, funded in part by General Electric. Professor Scott Auerbach described some of his research work with zeolites, and novel teaching methods using visual molecular dynamics. Professor Steven Hixson provided hands-on demonstrations on the use of the Online Web-based Learning (OWL) project for organic chemistry. Members of Professor Igor Kaltashov's group provided a tour of the mass spectrometry facility. The department would like to thank the alumni, faculty, visitors and staff who made the afternoon a great success.



Professor Scott Auerbach explained the research work in his laboratory.

## alumniNEWS

**Faizah Al-Mjeni** (Ph.D. '02 with Professor Maroney) has taken a position at Sultan Qaboos University in Oman. Faizah married John Husband (Ph.D. '02 with Professor Metz).

**David Berkebile** (M.S. '66, Ph.D. '69 with Professor McEwen) has been teaching at West Nottingham Academy, Colora, MD since 1999 after many years in industrial positions.

**Paul Carrington** (Ph.D. '03 with Professor Maroney) is now a postdoctoral fellow at Rockefeller University in Prof. Milton Werner's laboratory. Paul married **Rameh Hafezi** (MS '01 with Profs. Tyson and Uden) on Oct. 10, 2003.

**Balwant Chohan** (Ph.D. '02 with Professor Maroney) became a new assistant professor of chemistry at Susquehanna College this past Fall.

**Marianny Yajaira Combariza** (Ph.D. '03 with Professor Vachet) successfully defended her Ph.D. dissertation on Aug. 26, and has returned to Colombia to take a faculty position at Universidad Industrial de Santander.

The cover of the Aug. 8, 2003 issue of J. Org. Chem. featured work from Professor

Venkataraman's laboratory done by **Jason Field** (Ph.D. '03) and **Tom Hill** (B.S. '02).

**Robert Grosso** (Ph.D. '02 with Professor Vining) is a faculty member at Western Connecticut State University.

**Dmitry Gumerov** (Ph.D. '03 with Professor Kaltashov) works in the FT ICP MS division of Bruker Daltronics, Inc. in Billerica, MA.

**Frank Higbie** (M.S. '69 with Professor Rausch) reports that he and his wife, Lois, have traveled to northern England and Stockholm, Sweden on a European trip and visited Mt. Rushmore and other attractions in the Black Hills and Badlands of South Dakota this past summer.

**Binu James** (M.S. '02 with Professor Thompson) married Jacob Isaac in April, 2001 and they are now the proud parents of a baby boy born this past July.

**Eugenio Jaramillo** (Ph.D. '01 with Professor Auerbach) has been appointed as a staff scientist in molecular simulations at Los Alamos National Lab. He and his wife Nhora are expecting the birth of their second child.

**Mark Kearley** (Ph.D. '92 with Professor Lahti) has moved from the Chemistry Department at Creighton University in Nebraska to become department chair of the Chemistry Department at Sonoma State University in California.

**Andrew Leeson** (B.S. '03), after leaving the Vachet research group upon graduation, is a student at the Drexel College of Medicine in Philadelphia.

In April of 2003, **David J. Mazzo** (Ph.D. '83 with Professor Uden) joined Chugai Pharma USA in San Diego, CA, as President and CEO. The primary focus of Chugai's discovery research areas are cardiovascular diseases and cancer. The parent company is Chugai Pharmaceutical Co. Ltd., founded in Japan in 1925. In addition to his many new responsibilities at Chugai, Dave continues to serve on the NSM Dean's Council here at UMass. In the Chemistry Department, he plays a major role in our Bioanalytical Initiative (see the Goessmann Gazette, Vol. 30, p. 19).

**David Modarelli** (Ph.D. '91 with Professor Lahti) received tenure and promotion to Associate Professor at the University of Akron in Ohio. His research group has had great success in fundraising and augmenting the laser spectroscopy facility there. David married Jody Simone this past April.

In early November 2003, the department was visited by **Prof. Angelika Niemz** (Ph.D.

## *please*KEEP IN TOUCH!

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 to [gazette@chem.umass.edu](mailto:gazette@chem.umass.edu). We look forward to hearing from you!

'99 with Professor Rotello). Angelika is assistant professor of bioengineering at the Keck Graduate Institute of Applied Life Sciences which is associated with Claremont College. She was here to talk with undergraduates about summer research opportunities at Keck and to describe their Master of Bioscience program.

**Kate Ryan** (B.S. '03) is a graduate student at Penn. State Univ. Kate did research here in Prof. Kaltashov's group.

**Frank Rossito** (Ph.D. '94 with Professor Lahti) sends word that things are going well at Bostik-Findley in Massachusetts.

**Chris Thompson** (Ph.D. '03 with Professor Metz) has joined the FTMS group at Bruker as an R&D scientist.

All alumni are cordially invited to

## *alumni*REUNION 2004

### *Professors Richason and Stein to be Honored at the Next Chemistry Reunion !!!*

You are cordially invited to the next Chemistry Reunion, on Saturday, the 5th of June, 2004 in room 1634 of the Lederle Graduate Research Tower from 2-5 p.m. This event is part of the university-wide Alumni Weekend. We will honor two of Chemistry's towering figures: Richard Stein and George Richason, Jr., people who created much of the excellence we now take for granted in Chemistry at UMass Amherst.

We plan the following schedule of events, open to all students, faculty, staff, alumni and friends:

- 2-3 p.m. Reception for Professors Richason and Stein
- 3-4 p.m. Historical Anecdotes from Professor David Adams
- 4-5 p.m. Facilities Tour for the Stein Reunion  
Toasts and Roasts for the Richason Reunion

The Richason Reunion provides a wonderful opportunity to celebrate the establishment of the [George R. Richason, Jr. Laboratory Fund](#). Please see page 19 for information on making your gift to the Richason Lab Fund.

Please RSVP to Brigette McKenna by phone at 413-545-6076 or by email at [bmckenna@chem.umass.edu](mailto:bmckenna@chem.umass.edu). Lederle Tower is just north of Goessmann Laboratory; room 1634 is on the 16th floor.

We hope to see you all there in June 2004 !!!

## faculty NEWS

### *Holmes Receives PRF Grant*

*Professor Emeritus Robert Holmes* received a new two-year grant from the Petroleum Research Fund (PRF) of the American Chemical Society for \$80,000 to continue his research program on Phosphoryl Transfer Enzymes and Hypervalent Phosphorus Chemistry with Dr. A. Chandrasekaran and Senior Fellow Natalya Timosheva. Bob has maintained funding of his research since entering the teaching profession at age 24! He was honored on the occasion of his 75<sup>th</sup> birthday at the banquet held at the International Symposium on Inorganic Ring Compounds held last summer in Burlington, Vermont (IRIS XI). He has been invited to discuss his research as the Keynote Lecturer at the opening of the 7<sup>th</sup> IUPAC International Conference on Heteroatom Chemistry to be held August 20-25, 2004 in Shanghai.

### *Lahti Heads Team Receiving NSF Grant for 400 MHz NMR Instrument*

A team of investigators (*Professors Lahti, Venkataraman, Rotello, Dickinson, Tew, Emerick and Coughlin*) from Chemistry and Polymer Science & Engineering received a \$234,975 grant from the CRIF program of the National Science Foundation to upgrade the facilities of the Nuclear Magnetic Resonance Laboratory. The money, combined with matching funds from the university, purchased a 400 MHz spectrometer to replace an aging 200 MHz routine-use instrument. The new unit substantially enhances the ability of synthetic chemists in Chemistry and PS&E to get high grade spectra for molecular identification and analysis.

Paul has also been active on the speaking circuit, giving invited talks at the International Conference on Molecule Based Magnets in Valencia, Spain in October, 2002, and a talk before the Cincinnati Section of ACS at the Vernon Manor Hotel in February, 2003.

## new FACULTY

*Sankaran Thayumanavan* (called "Thai" by his friends and colleagues) joined the Department as an Assistant Professor in September, 2003. Thai moved to UMass after spending four years at Tulane University. Most of his research group (four graduate students and six postdoctoral associates) at Tulane moved with him to continue their work here at Massachusetts. Thai received his Ph.D. at the University of Illinois, Urbana-Champaign in 1996 working with Peter Beak. He joined Seth Marder's group at Caltech the same year and stayed there until 1999. Thai's research interests are in the area of Organic/Macromolecular Chemistry. He is interested in the custom-design of new organic small molecules and macromolecules that are of interest at the interface of Chemistry with other research, particularly Biology and Material Science. His work was recognized by a Cottrell Scholar Award, a 3M non-tenured faculty award, and a NSF-CAREER award. Thai moved to Amherst with his wife, Sharmila, and two sons, Ethan and Seth.





### CD-ROMS by Professor Vining

**Professor William Vining** had two educational CD-ROMS published by Brooks/Cole Publishers this year. The first, called *Interactive Analytical Chemistry*, is for use with the analytical text authored by Skoog, West and Holler and the second is entitled *Interactive General, Organic and Biochemistry*.

### Maroney wins NSF and PRF Grants

**Professor Michael Maroney** received an NSF grant from the Molecular and Cellular Biology Program. The PRF grant is to support a new project entitled, “Sulfur redox chemistry in biology: the structure and function of iron in rat liver cysteine dioxygenase.” Mike gave an invited lecture at the 11<sup>th</sup> International Conference on Bioinorganic Chemistry in Cairns, Australia.

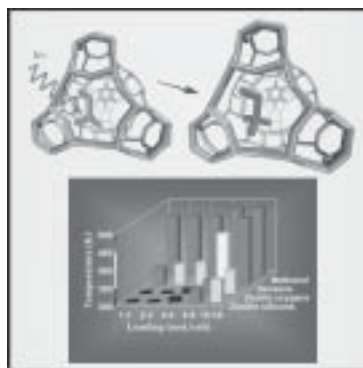
### Archer serving on ACS Committee on Committees

**Emeritus Professor Ron Archer**, who continues to represent the Connecticut Valley Section as a councilor to the ACS, was reelected this Fall to the Committee on Committees for the term 2004-2006. He was also on the ballot this past Fall for ACS Director of Division I but lost to the incumbent in an election decided by second place ballots.

### Auerbach Part of a Team Winning \$1.2M NSF Grant

**Professor Scott Auerbach** is part of a team representing several departments with Professor Curt Conner of Chemical Engineering as PI which received a grant from a new program at NSF titled, “Nanoscale Interdisciplinary Research Team.” The grant is funded from NSF’s

Engineering Directorate via the Division of Chemical and Transport Systems and the subdivision of Kinetics and Catalysis to explore Microwave Synthesis of Nanoporous Catalysts. An article from the Auerbach group was featured as the cover article for an issue of *J. Phys. Chem.* (Cristian Blanco and Scott M. Auerbach, “Nonequilibrium Molecular Dynamics of Microwave-driven Zeolite-Guest Systems: Loading Dependence of Athermal Effects,” *J. Phys. Chem. B* 107, 2490-2499 (2003) see figure below). Scott has joined the editorial board of the *Journal of Computational*



Microwave-Driven Zeolite-Guest Systems Show Selective Heating and Possibly Energy-Efficient Separations

and Theoretical Nanoscience and is chair of the 2003 Northeast Corridor Zeolite Association. He has recently published a 1184 page book on zeolite science and technology.

### Thompson on Biophysical Society Council

**Professor Lynmarie Thompson** was elected to a 3-year term on the Biophysical Society Council. She gave invited seminars at a joint session of two keystone conferences on “Membrane Proteins” and “NMR in Molecular Biology” in Taos, New Mexico. She also spoke at the Bollum Symposium at the Univ. of Minn., a one-day

symposium on “Structural Dynamics of Membrane Signal Transduction.”

### *Professor Botch is PI of a Grant for Instructional Purposes*

Last May, a team of *Professors Roberta Day* and *Steve Hixson* from Chemistry, David Hart from Computer Science and Marietta Schwartz from Chemistry at UMass/Boston, headed by *Professor*

*Beatrice Botch* from Chemistry, was awarded a Professional Development Grant in Instructional Technology for Academic Development for their proposal entitled, “ChemPrep.” The Professional Development Program is jointly sponsored by the University of Massachusetts President’s Office and the Information Technology Council.

## *A New Amino Acid Discovered in Selenium Enriched Yeast*

*Professors Julian Tyson* and *Peter Uden* together with graduate students Chey Kahakachchi, Harriet Totoe, Paula Nolibos and Rameh Hafezi have been investigating the chemical composition of the selenium-enriched yeast used in the “Clark” trial. In 1996, Larry Clark and colleagues reported the results of a seven year study which showed that the participants taking the selenium supplement had significantly decreased incidence of several cancers compared with that of the control group. Analysis of the solution produced by enzymatic hydrolysis of the yeast, by high performance liquid chromatography with inductively coupled plasma mass spectrometry detection, showed that the various materials used by Clark contained three major selenium containing species. By retention time matching, one of these was identified as selenomethionine. Simple redox chemistry allowed identification of another as the hydrate of selenomethionine oxide. No match was found for the third compound with any selenium compounds previously identified in biological materials. The compounds extracted from the yeast were reacted with ethylchloroformate to give thermally stable volatile derivatives that were separated by GC and detected with microwave induced plasma atomic emission spectroscopy. The chromatograms showed that the derivative of the unknown compound gave a response in both the selenium and sulfur channels in a ratio that corresponded to one atom of each element in the molecule. The compound was located among the large number of compounds separated and detected by the GC-MS by looking for the characteristic isotope pattern of a single selenium atom. Interpretation of the mass spectrum led to a suggestion for the identity of the candidate compound. Eric Block of the Chemistry Department at SUNY Albany, together with graduate student Sherida Johnson, synthesized this and some closely related analogs. Examination of the mass spectra and GC and HPLC retention times of these compounds provided confirmation that the third major compound in the Clark yeast was S-(methylseleno)-cysteine, a previously unknown amino acid containing a -Se-S- group. Further confirmation came from isolation of the relevant HPLC peak followed by freeze drying pre-concentration and analysis by derivative GC. It is not known if the new amino acid was produced by the yeast in response to the selenium administered during growth or by the in vitro reactions occurring during storage. Aspects of the work were supported by NSF grants to Professor Tyson and Professor Block.



Professor Peter Uden, Chey Kahakachchi, Harriet Totoe, and Professor Julian Tyson

Over the summer, work began on a preparatory course for general chemistry and one for organic chemistry to be delivered through our Online Web-based Learning (OWL) system at Amherst and Boston campuses. Each course includes a pretest to identify weaknesses and a set of recommended modules consisting of tutors, simulations and homework questions to strengthen understanding. Students take the online courses prior to taking the first semester of general chemistry or organic chemistry. Pilot testing of the courses began in January 2004, and evaluation studies will follow students through the regular courses on general and organic chemistry to

determine the impact of online preparatory material on student learning.

### *Interactive Exhibit at the National Plastics Museum*

**Commonwealth Emeritus Professor Richard Stein**, who chairs the Exhibit Committee at the National Plastics Museum in Leominster, Massachusetts, has coordinated the design and construction of an interactive exhibit on “Plastics and the Environment” which was completed in January, 2004.

## *We need your help and advice!*

1. Contact information:

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

2. Who was your favorite professor and why? \_\_\_\_\_

\_\_\_\_\_

3. What should we be teaching?

a. critical thinking skills \_\_\_\_\_

b. chemistry data \_\_\_\_\_

c. lab experience \_\_\_\_\_

d. other \_\_\_\_\_

4. What have you been up to? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please return this questionnaire to:

Professor Scott Auerbach

Department of Chemistry

University of Massachusetts Amherst

710 North Pleasant Street

Lederle Graduate Research Tower 701

Amherst, MA 01003

auerbach@chem.umass.edu (email)

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## visitorNEWS

*Kristin Kumashiro*, a former postdoc in the Thompson lab, was awarded tenure last June in the Chemistry Department at the University of Hawaii.

*Francois-Xavier Coudert*, from the Ecole Normale Supérieure in Paris, was an exchange student in the Auerbach lab from Jan-June of 2003. Despite his youth (Francois-Xavier was 20 years old when he arrived in Amherst and had already completed his M.S. in theoretical chemistry) he carried out impressive calculations modeling proton transfer in zeolites.

## staffCHANGES

*Linda Warren* stepped down from her post-retirement appointment in the General Chemistry office in May of 2003.

*Marie Whalen* has assumed the responsibilities of administering the General Chemistry Program as well as coordinating the Undergraduate program.

*Marie Wilga*, who officially retired in December, continues to serve the Department on a part-time, post-retirement appointment.

*Mike Conboy* retired at the end of December after serving the department for many years in the electronics shop. Quite a number of graduate students remember Mike for the electronics expertise he provided for their thesis projects, ranging from repair to circuit design and construction.

*Kim Florek* resigned her position as our computer system administrator in December.

## inMEMORIAM

*Dr. Kathleen M. Keating* (B.S. '81) passed away on June 2, 2003. After receiving her Ph.D. in Analytical Chemistry from

Colorado State University, she did post-doctoral work at Yale Medical School in the Department of Molecular Biophysics & Biochemistry. She returned to Massachusetts to work in the biotechnology industry. She is survived by her husband, Scott D. Gilbert, chief warrant officer, United States Coast Guard.

*Popkin Shenian* (Ph.D. '51 with Professor Cannon) died on November 11, 2002 at the age of 74. Pop, as we knew him, was an instructor in the Department after he completed his doctoral studies. After beginning his industrial career in research with American Cyanamid, he joined General Electric for a career that lasted 30 years. His work there involved high-performance engineering plastics. Pop was a key player in the development of the first major plastic alloy system, the Noryl plastic alloy technology. He leaves his wife Joyce and three children.

## newADDITIONS

*Joseph Carroll* (Rotello group) and his wife, Alyson, are proud parents of Emily Anne Carroll born on October 26, 2003 at 9:18 p.m. weighing 8 lbs 1.5 oz and 21 inches long.

*Ben Frankamp* (Venkataraman group) and his wife, Hannah, are enjoying their little baby boy Asher Nathaniel Frankamp born on September 27, 2003 at 2:22 a.m. weighing 7 lbs and 3/4 oz and 20 inches long.

*Professor Bret Jackson* and his wife, Margaret, welcome Lillian Rakas-Jackson born 3:30 a.m. on January 15, 2004, weighing in at 8 lbs 15 oz.

*Professor Richard Vachet* and his wife, Laura, are thrilled with the addition of Charles Woodward Vachet, Charlie, born on April 17, 2003 weighing 9 lbs 1.3 oz and 22.25 inches long.



# chemistry SEMINAR PROGRAM

Once again, this year's departmental seminar program was filled with outstanding speakers who spoke on a variety of cutting-edge topics. Highlighted among these seminars were four honorary seminars which featured distinguished scientists from both academia and industry.

On April 24, Professor Kenneth Suslick from the University of Illinois presented a fascinating seminar entitled "Sonochemical Synthesis of Novel Materials" as part of the annual Five College Lecture Series. Professor Suslick is a fellow of the American Association for the Advancement of Science, and has received several accolades during his career, including the American Chemical Society Nobel Laureate Signature Award for Graduate Education. During his lecture, Professor Suslick described his group's use of ultrasonic acoustic waves to synthesize unique materials inside gas bubbles that exist in solution. The extreme conditions generated inside these bubbles lead to substantial improvements in reactions that use metals as both reagents and catalysts.

On September 25, the seventh annual Procter & Gamble seminar was given by Professor Jeanne E. Pemberton from the University of Arizona. Professor Pemberton is well known for efforts to promote the participation of women in science; she is equally distinguished for her fundamental work in interfacial chemistry. During her seminar entitled "Toward a Molecular Description of Retention in Reversed-Phase Liquid Chromatography: Sticky Chunks of Dirt or Motor Oil?," she described how Raman spectroscopy can be used to provide detailed insights into the retention of molecules on hydrophobic stationary phases.



William E. Mahoney and Prof. Lawrence M. Krauss

The annual William E. Mahoney Seminar was held on October 23, 2003. This seminar series is made possible by the generous contributions of Chemistry alumnus William E. Mahoney and features a top scientist who has made a major impact in his/her area of expertise and has contributed to scientific understanding of the public at-large. This year's speaker was Professor Lawrence Krauss from Case Western Reserve University. Professor Krauss is an internationally known theoretical physicist whose research interests include studies of the early universe. Prof. Krauss has authored over 180 scientific publications as well as six popular books, including the national bestseller, *The Physics of Star Trek*. He has received numerous awards for his scientific research and writing, including the American Association for the Advancement of Science's 1999-2000

Award for the Public Understanding of Science and Technology, joining previous awardees Carl Sagan and E.O. Wilson, and the 2001 Andrew Gemant Award. With the latter award he joins the ranks of people like Freeman Dyson and Stephen Hawking, who were previous awardees. Prof. Krauss gave a very thought-provoking lecture entitled "Scientific Ignorance as a Way of Life," in which he detailed several detrimental effects of scientific illiteracy in our country today.

The sixth annual Stein-Bayer Lecture was given on November 13, 2003. This seminar, which is generously sponsored by Bayer Corporation, honors the seminal contributions to polymer chemistry made by our own Professor Richard Stein. Dr. Craig J. Hawker from IBM's Almaden Research Center was this year's speaker. Dr. Hawker is a leader in polymer synthesis and is recognized as inventor and pioneer of the convergent synthetic strategy toward dendritic polymers. He has won several awards, including the Arthur K. Doolittle Award (1997), the Carl S. Marvel Creative Polymer Chemistry Award (2001), and the Co-operative Research Award (2003), all given by the American Chemical Society. His lecture, "Functionalized Nanostructures for Advanced Microelectronic Applications – Studies at the Interface of Organic and Polymer Chemistry," detailed his recent work on the application of his synthetic strategies toward commercially viable products based on nanotechnology.



Prof. Bret Jackson, Dr. Jeanne E. Pemberton and Jeff Seeley '92G.



Dr. Craig J. Hawker

The **George R. Richason, Jr. Laboratory Fund** will support the research of *Associate Professor Mike Barnes*, who will join Chemistry in the Fall of 2004. Establishing the Richason Lab Fund to honor George is truly fitting in view of his myriad efforts on behalf of UMass Amherst and its Chemistry Department.

George grew up in the Riverside section of Gill, graduating from Turner's Falls High School in 1932. He entered MSC in the Fall of 1933 as a chemistry major and promising basketball player. After his first year George had to choose between spending his afternoons in the chemistry laboratory or on the practice court. Fortunately for those of us who were lucky enough to have him as an instructor in general chemistry, he chose the laboratory. During his pursuit of a chemistry degree George took courses from *Joseph "Shorty" Chamberlain*, *Charles Peters*, *Richard "Doc" Fessenden*, and *Paul Serex*. Also at this time he took several education courses in anticipation of a career in teaching. George's MSC Chemistry graduating class of 1937 planted the two maple trees at the front of "old" Goessmann to honor *Joseph Lindsey* and *Joseph Chamberlain*. The two plaques marking the "Joe-Joe" trees remain today.

George stayed in Amherst to earn a master's degree in 1939 in chemistry under the tutelage of *Doc Fessenden*. He then taught at Turner's Falls High School for three years until he volunteered for service during WWII. During the war, George was involved in the secret radar project at MIT where he taught advanced electronics to radar operators. After the war he remained at MIT for another year as officer in charge of the Patent Section of the Office of Naval Research. He continued to serve in the Naval Research Reserve, advancing to the rank of Commander prior to his retirement from the Reserve in 1969.

After the war he returned to Turner's Falls High School to teach chemistry, physics, and mathematics. In the Fall of 1947, Doc Fessenden offered him the opportunity to teach chemistry at the then University of Massachusetts. George taught general chemistry and radiochemistry to thousands of UMass students until his "retirement" in 1976. During this time he managed the general chemistry program; wrote several lecture and laboratory manuals; served as department head several times; served as the University's Radiological Safety Officer; led the design team for the "new" Goessmann building in the late 1950s, and the "A" Tower in the early 1970s; won the university's second Distinguished Teaching Award in 1963; chaired numerous committees of the Alumni Association for many years; and served on the Athletic Council. George became the official University Macebearer in 1974. He continues to carry the mace at commencement, and at special occasions such as the inauguration of *Chancellor John Lombardi* in February of 2003. Clear manifestations of George's broad and valuable contributions to UMass were his induction into the Trigger Burke



President Lederle congratulating Professor Richason on his Honorary Doctorate in Science degree in 1991.

## *Alumnus Bill Donovan Initiates Richason Lab Fund*

The Department of Chemistry and Professor Richason have accumulated many fans over the years; few are more loyal than Bill Donovan (C. W. Donovan, Jr. Chemistry B.S. 1963). An entrepreneur with business interests on both coasts, Bill believes that Chemistry provides an excellent educational foundation for any career path. The analytical and critical thinking skills of the scientific thought process are particularly valuable in today's increasingly complex technical, business and social environment.

Mr. Donovan, pictured with Professor Richason and Dean Osterweil, has made the initial contribution to the George R. Richason, Jr. Laboratory Fund. He has pledged additional funds on a matching basis and will assist the UMass Amherst Department of Chemistry by acting as a liaison to Chemistry alums who wish to contribute to the Richason Lab Fund.



Dean Osterweil, Professor George Richason, and Mr. Charles W. Donovan (2003)

Athletic Hall of Fame in 1982, his recognition as an Emeritus Member of the Board of Directors of the Alumni Association, and his award of an Honorary Doctorate in Science (D.Sc.) degree in 1991.

Since his first retirement in 1976, George has worked part-time for the Chemistry Department as Assistant to the Department Head and Chief Undergraduate Advisor, positions in which he continues to counsel hundreds of chemistry majors in their future careers. He continues to serve on the Athletic Council and regularly attends UMass Amherst home football and basketball games.

George Richason has labored for nearly six decades to enhance student opportunities at UMass. He continues in this effort today at the age of 87. It is altogether appropriate that the Chemistry Department help him with these activities by providing modern,

state of the art laboratory facilities for research students. The **George R. Richason, Jr. Laboratory Fund** will honor George by providing these facilities. By establishing this Fund, the Chemistry Department is providing an opportunity not only for future students, but also for Chemistry alumni to show their support for and appreciation of both George and the future of the UMass Amherst Chemistry Department.

You are cordially invited to the Chemistry Reunion in June 2004, to celebrate the establishment of the Richason Lab Fund. Please turn to page 3 for complete details.

Please turn to page 19 for information on making your gift to the **George R. Richason, Jr. Laboratory Fund**. More information on gift-giving to the Chemistry Department can be found on page 19, and on our website: <http://www.chem.umass.edu/giving.html>.

# research SYMPOSIUM 2003



Juma Bridgewater (Vachet lab) and Wipharat Chuachud (Tyson lab)

The 13<sup>th</sup> Annual Chemistry Department Research Symposium was held on Saturday, April 13, 2003. As has been the format in recent years, the symposium consisted of 20 minute lecture presentations by six outstanding graduate students representing a cross section of research areas within the department chosen from submitted presentations. In addition there were more than 40 poster presentations by undergraduate, graduate and post-doctoral researchers.

This year, we were able to make awards for both oral and poster presentations, generously provided by the Procter and Gamble Company. The awards were earmarked to assist financially in the attendance of students at conferences and meetings. With the agreement of P&G, awards consisted of 'Excellence' prizes of \$250 for the two best lectures, given this year to Cristian Blanco of the Auerbach research group and Yajaira Combariza of the Vachet research group, and six best posters ( Martha Baskett, Joseph Carroll, Anirban Mohimen, Syed Peeran, Joseph Quattrucci and Anthony Shrout ) chosen by a panel of judges. In addition, ten further awards of 'Merit,' each of \$50, were made to additional poster presenters.



Syed Peeran (Thompson lab), Manori Gunawardhana (Metz lab), and Jennifer LaForest (Metz lab)

## graduate student NEWS

**Derek Van Allen** (Venkataraman group) has received a National Research Council Fellowship to work with the National Space and Aeronautics Administration at Langley Air Force Base upon completion of his Ph.D.

**Craig Bates** (Venkataraman group) won a \$2,500 scholarship from Procter & Gamble.

**Cristian Blanco** (Ph.D. '03, Auerbach group) completed his Ph.D. this past Spring and then continued on for a short postdoc in the Auerbach lab. Cristian completed his Ph.D. "one day after" his wife completed hers! His brother-in-law, Aldo Cambariza, a first-year chemistry graduate student, will carry on with Cris' work.

**Ben Frankamp** (Rotello group) won a Graduate Student Fellowship from the ACS Division of Organic Chemistry sponsored by Procter & Gamble.

**Dan Fowler** (Thompson group) and **Matt Miller** (Vachet group) were awarded Chemistry-Biology Interface fellowships. These awards are funded through an NIH training program.

## habitat for humanity

Several graduate students and faculty have been volunteering with the Pioneer Valley Habitat for Humanity. Habitat for Humanity is currently building two duplexes in the area; one is located in Greenfield while the other is in Northampton. During the spring, Chemistry Department volunteers spent a Sunday afternoon hanging siding on the building in Greenfield. Later in the summer, they volunteered at the Northampton site, where construction was just getting underway.



# undergraduate NEWS

Three undergraduates working in the Venkataraman lab have received major scholarships: **Noah Tremblay**, the George and Lillian Scholarship, and as well as the Pfizer Undergraduate Summer Research Fellowship; **Mike Doherty**, the Bristol-Meyers Squibb Fellowship; and **Jaclyn Murphy**, the C.D. Youngren Scholarship.

## undergraduates VISIT UCONN

Saturday, November 15, UMass's own undergraduate Chemistry Club (president: Jocelyn Scheintaub) caravanned to the University of Connecticut for an event UConn hosts yearly. It is the all-day undergraduate workshop on job searching and career preparation. Besides acting as representatives for UMass at the event, which was sanctioned and sponsored by the American Chemical Society, they were eager to learn about how to make the next academic years, graduation, and employment all smooth transitions and straightforward, not stressful and frustrating. The morning and afternoon were spent listening to guest lecturers speak about resume preparation, interviewing, job searching, etiquette, organization, how to prepare effective presentations and master public speaking. Guests included Dr. Murphy Hentemann of the Bayer Corporation, Dr. Nicholas Meanwell, Chemistry Director of the Bristol-Myers Squibb Pharmaceutical Research Institute, and Dr. Dan Eustace, the ACS career consultant at Polaroid.

Lunch and snacks were provided. Students brought sample resumé to be reviewed by some of the guests at the conference, and received useful feedback. This is the second year that this event has been attended by many members of the Chem Club. The club is working toward becoming an ACS affiliate very soon, and this would discount the conference fee for sponsored events for the club as well as provide many other benefits and opportunities.



Chem Club visits University of Connecticut for a workshop on career preparation.

## degrees AWARDED

### B.S. Degrees

Victoria Campbell	5/03
Sarah Clampa	5/03
Teresa Croce	2/03
James Doyle	5/03
Mary Golden	5/03
Wendy Johnson	5/03
Jared Kilgoar	5/03
Andrew Leeson	5/03
Michael Markey	5/03
Timothy McIntire	9/02
Aleksandr Milshteyn	2/03
Sandi Port-Walcott	2/03
Frances Reyes	5/03
Kathleen Ryan	5/03
Jennifer Simeone	5/03
Dannon Stigers	5/03
Yann Tombouret	5/03
Rozbeth Torabi	5/03
Rebecca Vieria	5/03

### M.S. Degrees

Chari Asta-Ferrero	9/02
Cristian Blanco (Auerbach lab)	5/03
Myrasol Bulaong Calloway (Vachet lab)	2/03
Marianny Combariza (Vachet lab)	5/03
Dmitry Gumerov (Kaltashov lab)	2/03
Alexander Hains	2/03
Oliver Kiowski (Rotello lab)	2/03
Thomas Lang	9/03
Padma Sekhar	9/02
Flobert Tanga (Martin lab)	2/03
Michael Williams (Stidham-Hsu labs)	9/02
Hui Xiao (Kaltashov lab)	9/02

### Ph.D. Degrees

Faizah Al-Mjeni (Maroney lab)	9/02
Cristian Blanco (Auerbach lab)	9/03
Andrew Boal (Rotello lab)	9/02
Paul Carrington (Maroney lab)	5/03
Robert Cleverley (Gierasch lab)	9/02
Marianny Combariza (Vachet lab)	2/04
Jason Field (Venkataraman lab)	5/03
Lora Field (Lahti lab)	5/03
Mark Gray (Rotello lab)	2/03
Robert Grosso (Vining lab)	9/02
Matthew Herzog (Rausch lab)	5/03
Eunhee Jeoung (Rotello lab)	2/03
Laila Kott (Weis lab)	9/02
Richard Maldanis (Rausch lab)	2/03
Nigel Metcalfe (Uden lab)	5/03
Atitaya Siripinyanond (Barnes lab)	9/02
Emily Yourd (Tyson lab)	2/03



# *undergraduate* SENIOR & AWARDS DINNER

At its fifth annual Senior and Awards Dinner, held at the China Dynasty Restaurant in Amherst on Thursday, May 15, 2003, the chemistry department recognized those undergraduates who have distinguished themselves in the pursuit of academic excellence. More than seventy-five students, parents, faculty and staff attended the event that included a sumptuous Chinese buffet followed by the presentation of awards to 25 deserving undergraduates by Undergraduate Program Director and Honors Coordinator David L. Adams. Marie Whalen, Undergraduate Program Coordinator, and Marie Wilga, departmental receptionist, organized the evening's activities. Lisa Korpiewski, the departmental graphics designer, provided the creative talents, making the certificates awarded to individual students, and the favors including chemistry department keyholders and bookmarks. For additional information about the undergraduate awards see the departmental web site at [www.chem.umass.edu/undergraduate/awards](http://www.chem.umass.edu/undergraduate/awards).

The following students received awards.

*Francis E. Reyes* – Connecticut Valley Section of the American Chemical Society (CVS/ACS) Student Award

*Andrew Leeson & Mary Golden* – Merck Index Award

*Jennifer L. Simeone* – American Institute of Chemists Award

*Yann P. Tambouret & Katharine M. Harris* – Richard W. Fessenden Award\*

*Ethan T. Sullivan* – Jay A. Pirog Scholarship\*



Professor David Adams presents Michael Tarselli (left) and Scott Lentini (right) with the Senior Class Award

*Kristen M. Ierardi, Tiffany C. Barry, Karen L. Havenstrite & Clayton T. Wood* – Robert Maxwell Williams Memorial Scholarship\*

*Michael N. Levine* – Analytical Chemistry Award from the American Chemical Society

*Fei Huang, Thomas R. Vargo & Stephanie R. Murphy* – CRC Freshman Chemistry Award

*Michael N. Levine, Sarah M. Gentry, Teresa S. Moniz, Thomas R. Vargo, Beth Szymanski, Olga Rosado, Pauline W. Mungai & On Yi Wong* – Edward Shapiro Scholarship

*Scott P. Lentini & Michael A. Tarselli* – Senior Class Award\*

*Yann P. Tambouret* – HyperCube Scholar Award

*Noah J. Tremblay* – George H. and Lillian Millman Scholarship

*Jaelyn M. Murphy* – C. D. Youngren Scholarship

*Leanna K. Toy* – Bradspies Research Fellowship\*

\*Made possible through generous contributions to the Chemistry Department

*UMass Amherst Chemistry ..., continued  
from page 1*

All the men were housed in the North College with the bookstore and barber shop. The barber knew everything happening on campus. Richard knew most of his classmates; together they embarked on excursions to Mount Tom and the Mount Holyoke range. Though he was in a chemistry class when the atomic bomb was dropped in Japan, he and his classmates were largely unaware of the significance.

Richard found that many of his classes and professors, including **J. Harold Smith, Richard Fessenden, Walter Ritchie,** and **John Roberts**, inspired and motivated his scientific curiosity. He was amazed that some of these same professors were still teaching when his son David started in 1971.

When he graduated in 1948, he embarked on a forty year career in science for the Commonwealth of Massachusetts. Throughout this, his UMass degree in chemistry served him well. He began at the Department of Public Health, producing blood products from human plasma for medical use. He also made toxoids and antitoxins for distribution in the Commonwealth. When he later transferred to Pondville Hospital, he became chief of the hospital laboratory, conducting nuclear medicine and cancer research.

In 1980, Richard moved to the Division of Occupational Hygiene of the Department of Labor and Industries and worked there until his retirement in 1988. The Division of Occupational Hygiene was one of the first in the country, and trained many of the industrial hygienists in the field, many from UMass. Years later, Richard's own son would work as a Chemical Hygiene Officer.

From Richard's present home in Hawaii, he looks back fondly at his college years in Amherst, and at the satisfying career for which these college years prepared him.

**David Levine: 1971-1975**

David Levine was like a lot of high school students in the late 60's – busy wondering what his future would hold in an uncertain world. The Vietnam War was still intensive, rock and roll was all the rage, and the trumpet was David's passion. His future, however, shaped itself when he took his first chemistry class. Chemistry and mathematics soon became the trumpet's rivals and, when he applied to college, he finally made the hard choice to pursue a career in chemistry.



Michael, Paula, Jason and David Levine

Though his own father had done well with his chemistry studies at UMass, David looked at many schools. He finally selected UMass over Duke and Northeastern not simply because it was his father's alma mater or because it was affordable, but because it offered so much: a terrific campus, great faculty, an assortment of classes and activities, and Julius Erving.

While at UMass, David held summer jobs at state labs as a phlebotomist, and at a hospital lab as a technician. He worked as a junior chemist at the state Children's Lead Poisoning Prevention Program. Though he had hoped to move into an industry position

immediately after graduating, it was a difficult time to find work. He ultimately completed his teaching certificate as a student teacher at the Northfield-Mount Hermon Preparatory School. Though he found work teaching science in public schools, the annual laying off and rehiring of teachers was too unpredictable, prompting David to resume his search for a job as a practicing chemist.

David credits his rigorous studies at UMass for preparing him for his career. When he applied for an entry level position at Gillette, he was put through two days of grueling interviews from scientists, including his future manager, a Ph.D. from MIT. Their goal was to determine if he had sufficient analytical and problem-solving skills as well as a regimented science background. He overwhelmed them with his vast knowledge! His career as a chemist began at Gillette's Papermate Stationery Products R&D Division. He also made time to continue his education on a part-time basis, eventually receiving an M.A. in Organic Chemistry from Bridgewater State College.

While at Gillette, David conducted research and development investigating surface chemistry, flow characteristics, absorption and evaporation rates, and color as they relate to pen and ink performance. In 1992, David assumed his current position of Chemical Safety & Hygiene Officer at the Gillette South Boston Manufacturing Center.

He remains at this position today, reviewing the Health and Safety Regulatory Compliance for equipment and processes in the South Boston facility, constantly on the look-out for potential hazards. David relies heavily on the analytical chemistry skills he learned at UMass – using portable instruments to monitor exposure to harmful chemicals, and collecting samples for analysis at certified labs. He

also conducts formal seminars and classes for employees to educate them on OSHA standards.

When his own sons, Michael and Jason, contemplated colleges, he didn't force the UMass Amherst option. Instead, he asked them to tell him the difference between UMass Amherst and their other choices. All they could say was that the others had fancy names and charged a lot more. In 2000, Michael decided that Chemistry at UMass was the right choice.

#### *Michael Levine: 2000-2004*

Michael is the third generation Levine in the Chemistry Department. Much has changed since 1945. While his grandfather lived in a male dorm that was shared by the barbershop, Michael lives off campus in a house with five women. The school has 16,000 more students. He has a part time job at the Mullins Center changing floors between games. But he, like his father and grandfather, has a passion for discovery and a history of using chemistry in the real world.



Michael Levine in the Vachet laboratory.

Michael has always been interested in science, even through elementary school. Growing up he always wanted to figure out how things worked. When he took up sailing he read books to study the physics of the sport. This interest was

furthered by family trips to national parks. On these long road trips, the Levine family would quiz each other on science and geography, eventually learning the history and scientific facts of the national parks they visited.

These family trips gave him the push to pursue science throughout high school and college. In the summer of 2000, after graduating from high school, he began his first internship at Gillette. His work there was a trial by fire; with only two years of high school chemistry, Michael learned much of the job through experience. As a formulation chemist, he subjected deodorants to temperature extremes to see whether their compositions changed. He was sent new products of all kinds to test for stability. Michael vividly recalls one non-deodorant project in which it took him three months to dissolve the rubber handle of a Venus razor. He continues to work at Gillette during his breaks from UMass Amherst.

As a member of *Professor Richard Vachet's* research group, Michael is investigating the metal-catalyzed reactivity of oxygen with a metallo-protein that can bind a range of transition metals. He is using mass spectrometry to determine the protein modifications caused by reactive oxygen species generated at different metal centers. Michael is also currently applying to medical schools and programs that offer a dual degree – M.D./Ph.D. – which would allow him to pursue both biomedical research and clinical medicine.

Michael did not know about the career his grandfather had followed when he made his own decisions. He did not know that he was following a legacy that began in 1945. He is glad for that. Otherwise, he might have felt pressured to follow in his father's and grandfather's footsteps. Instead, Michael freely chose UMass Amherst



Michael Levine and Professor Richard Vachet

Chemistry on its own merits. Now that he knows, though, he likes it. He enjoys talking to both his father and grandfather about his studies, and likes the feeling of following in their footsteps. He also likes the idea that the Chemistry Department at UMass Amherst has served his family so well over many years.

# *friends of umass chemistry* THANKS FOR YOUR SUPPORT!

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Dear Friends of the Chemistry Department,

As you can see from this issue of the *Goessmann Gazette*, our department had another great year. Our teaching excellence was recognized by two awards to our faculty: Professor Vining was awarded the College Outstanding Teaching Award, and Professor Whelan received a Certificate of Appreciation for Excellence in Teaching. An important component of our undergraduate program is laboratory research, and three Chemistry majors, Jaclyn Murphy, Michael Doherty and Noah Tremblay, received national awards recognizing their work. Our research prominence also continues to grow. Over the past year, 21 faculty members received 29 new awards totaling 5.3 million dollars – a 9% increase over the previous year. *Chemical & Engineering News* listed our department as one of the top 25 in terms of Ph.D.s granted. Among the honors garnered by faculty and students was the 2003-2004 S. F. Conti Faculty Fellowship, awarded to Professor Rotello. Finally, we were very pleased to bring to our department a new faculty member, Professor Thayumanavan, an organic chemist who has already received numerous prestigious awards for both his research and teaching.

As always, we are deeply grateful for the generous contributions so many of you have made to our department. As our state funding continues to decline, your gifts make up an ever-increasing percentage of our operating budget. Your contributions help to support and improve our teaching and research laboratories, provide scholarships for students, and allow us to function on a day-to-day basis. Moreover, your gifts help us to hire and provide startup packages for new faculty. This is especially important now as we begin to replace the numerous faculty who have retired in recent years. Unrestricted gifts provide us the most flexibility. If, instead, you wish to make a more targeted gift, please consider making a contribution to one of the funds listed below. We hope that you can continue to help us in our quest for excellence in teaching and research.

- Fund for the Future, used for the needs of new faculty.
- W. E. McEwen Scholarship Fund, used to assist students.
- George Richason Laboratory Fund, used to equip laboratories.
- Roger G. Bates Chemistry Fund, used for department programs.
- Richard W. Fessenden Award, an award to a senior chemistry major.



Sincerely,

Bret Jackson, Department Head

Telephone: 413-545-2583

Fax: 413-545-0011

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Procter & Gamble is one of largest Fortune 500 companies with annual sales greater than \$43 billion and net core earnings of \$5.19 billion. P&G was ranked #7 in Fortune's "Global Most Admired Companies," up from 15th place last year. A jury of its peers – companies like L'Oreal, Colgate-Palmolive, Gillette, and Kimberly, also ranked P&G #1 in Household and Personal Products. P&G manufactures 13 products with annual sales in excess of \$1 billion – Always, Ariel, Bounty, Charmin, Crest, Downy, Folgers, Iams, Olay, Pampers, Pantene, Pringles, and Tide.

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Procter & Gamble is committed to higher education. The P&G Fund, the company's foundation, contributed \$39.5 million last year to educational institutions, health, social service, cultural, civic and environmental organizations. About 60% of giving supports education. UMass Amherst has received over \$2 million since 1990 in restricted and unrestricted research grants from Procter & Gamble. Recently sponsored research programs involve biodegradable polymers, medical devices for pain relief, and osteoporosis epidemiology.

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