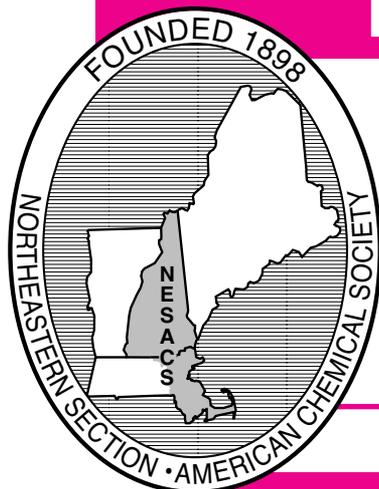


# National Meeting Issue



# THE NUCLEUS

Summer 2007

Vol. LXXXV, No. 10



## What's New in Boston

*Morton Z. Hoffman and Robert Lichter*

## Getting Ahead

*Scott Szeszsy, Jillian Savoy and Megan Driscoll*

## NESACS Exchange with Germany

*Morton Z. Hoffman, Ruth Tanner and Michael Strem*

## Reflections on an Academic Job Search

*Anne McNeil*



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**The Northeastern Section of the American Chemical Society, Inc.**

Office: Marilou Cashman, 23 Cottage St.,  
Natick, MA 01360. 1-800-872-2054  
(Voice or FAX) or 508-653-6329.

e-mail: mcash0953(at)aol.com

Any Section business may be conducted  
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NESACS Homepage:

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508-651-8151X291; msinger(at)sial.com

*Treasurer:*

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978-456-3155; piper28(at)attglobal.net

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*Trustees:*

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**Cover:** *A view of downtown Boston and Rowe's Wharf from the Harbor Walk.*  
*Photo by Morton Z. Hoffman.*

**Deadlines:** *October 2007 Issue: August 17, 2007*

*November 2007 Issue: September 14, 2007*

## THE NUCLEUS

*The Nucleus is published monthly, except June and August by the Northeastern Section of the American Chemical Society, Inc. Forms close for advertising on the 1st of the month of the preceding issue. Text must be received by the editor six weeks before the date of issue.*

**Editor:** Michael P. Filosa, Ph.D., editor, ZINK Imaging LLC, 1265 Main Street,  
Waltham, MA 02451 Email: Michael.Filosa(at)zink.com; Tel: 781-386-8479.

**Associate Editors:** Myron S. Simon, 20 Somerset Rd., W. Newton, MA 02465, Tel: 617-332-5273  
Sheila E Rodman, Konarka Technologies Inc., 116 John St. Suite 12, Lowell, MA  
01852 email: srodman(at)konarka.com tel 978-569-1414

**Board of Publications:** Vivian K. Walworth (Chair), Mary Mahaney, David Cunningham

**Business Manager:** Karen Piper, 19 Mill Rd., Harvard, MA 01451, Tel: 978-456-8622

**Advertising Manager:** Vincent J. Gale, P.O. Box 1150, Marshfield, MA 02050,  
Tel: 781-837-0424; FAX: 781-837-1453

**Contributing Editors:** Morton Hoffman, Feature Editor; Dennis Sardella, Book Reviews

**Calendar Coordinator:** Sheila Rodman, email: srodman(at)konarka.com

**Photographers:** Morton Z. Hoffman and James Phillips

**Proofreaders:** Donald O. Rickter, Myron S. Simon, Vivian K. Walworth, E. Joseph Billo

**Webpage:** Webmaster: David Cunningham, david\_cunningham(at)uml.edu

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# What's New in Boston?

By Morton Hoffman [hoffman@bu.edu]  
and Robert Lichter [RLichter@MerrimackLLC.com]

*This article appeared in the Journal of Chemical Education and is reprinted with permission of the editor.*

If you were last in Boston for the ACS National Meeting in 2002, or have not been here since the meeting in 1998, you should be aware that many changes that have taken place in this venerable city will have an impact on your visit in August. Most of the changes are the result of the Big Dig, the multi-decade urban highway project that is the largest, most complex, and most expensive in U.S. history. Now virtually complete after the expenditure of upwards of \$15 x 10<sup>9</sup> of mostly federal funds (we thank you for paying your taxes!), except for wrongful death lawsuits, investigations of corruption and fraud, and the cleaning up of the detritus that has piled up (which will probably take another couple of decades), the elevated Central Artery that separated the North End and the waterfront from the rest of the city is now gone, resulting in an area that is brighter and airier than before. The Massachusetts Turnpike (I-90) extends to Logan Airport, and the South Boston Seaport District, under which is a network of tunnels and interchanges, is in the process of being converted from a tired industrial wasteland into a nascent business- and

convention-oriented area.

## The Loci of the ACS Meeting

The most important thing to remember is that all of the technical sessions and most of the social events this year will **NOT** be held at the cozy and conveniently located, but woefully too small, Hynes Convention Center at the Prudential Center and the adjacent hotels in the Back Bay. Rather, those parts of the meeting will be in the new Boston Convention and Exposition Center (BCEC) and the adjacent Seaport and Westin Waterfront hotels in the South Boston Seaport District, which is about three miles away. However, ACS governance and many of the divisional committee meetings **WILL** be held in the hotels in and around the Prudential Center. ACS housing options include the South Boston hotels, some downtown hotels, which are 1-2 miles from both loci, and the Back Bay hotels with which most people are acquainted from previous meetings. We have been assured that shuttle buses will ply the streets of Boston during the days and evenings of the meeting between the major hotels and the BCEC.

The walk between the BCEC and South Station in Downtown along Summer Street takes about 15 minutes. The street, which passes through a commercial area with few touristic amenities, is wide with a fair amount of automotive and pedestrian traffic during the workday; it is apt to be somewhat desolate on weekends and in the evening. Although the Seaport District around the BCEC and the adjacent hotels will be fairly active at night during the summer because of concerts and other events at the Bank of America Pavilion, it will differ from a casual stroll along Newbury Street and the other Back Bay byways you may be used to. Yet, because Boston is a small, compact city, these and other opportunities are still relatively con-

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venient to enjoy. Be sure to visit the booth of the Boston Convention and Visitors Bureau in the BCEC for a list of other activities and places to visit.

## South Boston Seaport District

When you tire of the technical sessions and the exposition and you want to get some food, there are some decent choices in addition to the food court at the BCEC. Notable are the following restaurants along Northern Avenue, most of which provide water views and *al fresco* dining that are less than a 15-minute walk from the BCEC: Anthony's Pier Four, The Daily Catch, Harpoon Brewery, No Name Restaurant, Yankee Lobster. There is a food court in the World Trade Center, some restaurants along Seaport Boulevard and Congress Street, and, of course, the upscale eateries in the hotels.

One nice feature of the Seaport District and the adjacent downtown area is the Harbor Walk along the

*Continued on page 32*

## Save the Date!

**6th Annual Undergraduate  
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Bridgewater State College**

Undergraduate research posters (including completed, in progress, and proposed research) in all environmental disciplines are welcome.

Please email Ed Brush (ebrush(at)bridgew.edu) to add your name to our email distribution list. A formal "Call for Abstracts" will be sent electronically in September. ♦

# 2007 NESACS ELECTION

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David Cunningham 312 (#-3 yrs)

Mark Froimowitz 272 (#-3 yrs)

Eriks Rozners 263 (#-3 yrs)

Mukund S. Chorghade 259

**## Elected Councilor**

**# Elected Alternate Councilor**

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Jerry P. Jasinski 200

David Cunningham 170

Pamela M. Nagafuji 157

## Esselen Award Committee

Arthur S. Obermayer 234

Charles E. Kolb 230

Alfred Viola 223

Sean Lu 122

## Richards Medal Committee

Daniel G. Nocera 246

Dagmar Ringe 238

Barry L. Karger 223

Peter Jacobi 124

Underlined Candidates won election to their respective positions. ◇

# Welcome to Boston!

*Greetings from the 2007 NESACS Chair,  
Mukund S. Chorghade*

On behalf of our section, may I extend a very warm welcome to you and your families as you participate in a celebration of Chemistry and History. We are very proud of our cultural, historical, scientific and technological contributions to society: our section is blessed with a talented membership representing all the diverse disciplines in Chemistry and who are employed in the strategic triad of academia, industry and government. We have organized a group of dedicated volunteers to assist you at the ACS meeting: I am confident that our section members will welcome with the warmth, cordiality, friendship and gracious hospitality that has been the hallmark of our traditions and the well-spring of our progress.

Our section membership participates in many activities at the National level and has also spearheaded many innovative programs that highlight the many benefits of chemistry to civic and community groups. We offer excellent career guidance to professionals in our field: our career services programs focus on timely assistance and counsel to employment seekers at all levels. Our NESACS blogs have become justifiably renowned. We have participated in US-Germany academic exchanges that have set an admirable standard for other sections. Recently we organized an inaugural "Advances in Chemical Sciences Symposium". Under the auspices of these conferences, eminent scientists from the strategic triad of academia, government and industry will deliver plenary lectures. This year's conference brought together 200+ scientists for a scholarly event focusing on medicinal chemistry, organic synthesis and methodology. This year's plenary lecturers included luminaries such as Robert Grubbs (Caltech), William Greenlee (Schering Plough), Eric Jacobsen (Harvard), Steven Ley (University of Cambridge), Mark Murcko (Vertex) and Tomi Sawyer (Pfizer).

The topical focus areas – medicinal chemistry, pharmaceutical and organic synthesis were areas where the chemical enterprise in our area has a well deserved reputation for excellence. We were fortunate in having the support of several pharmaceutical companies in the area; a group of distinguished vendors added luster and flavor to the discussions. So, join us for the ACS meeting and future events. We invite all of you to collaborate, debate and parley, share ideas and your wisdom and build your networks.

A visit to Boston would not be complete without visiting our historical sites, cultural attractions and partaking of the many offerings of this wonderful city. So, please visit the Freedom Trail, the Lexington Green, the old North Bridge in Concord and the USS Constitution. Take your family for a cruise; enjoy fine dining at the many superb and multi-ethnic restaurants catering to every taste. See Fenway Park (the home of the Boston Red Sox) and take a campus tour of our fine academic institutions.

Above all, please resolve to come back and to answer a quiz question: Who made the first nitrite (nightride)? The answer of course, is Paul Revere!!

Mukund Chorghade ◇

# 2007 Norris Award

*Awarded to Professor Diane  
Bunce*

Professor J. Donald Smith, Chair of the Norris Award Committee has announced that the 2007 winner of the Norris Award for Outstanding Achievement in the Teaching of Chemistry will be Professor Diane Bunce of Catholic University of America. ◇

# NESACS Members Active in Boston ACS Meeting Symposia

Members of the Northeastern Section have organized and are major participants in at least five exciting and varied symposia at the 2007 Boston ACS meeting. At **8:45 AM on Sunday, August 19<sup>th</sup>**, in the Seaport Hotel, Plaza B, former NESACS Chair and current Councilor, Mort Hoffman, will deliver the keynote address, "Exploring the High School-College Interface," at the Division of Chemical Education's High School Program. That same afternoon, **from 1:30 to 5:00 PM** in the Seaport Hotel, Plaza A, the Division of Chemical Education, collaborating with many other ACS Divisions and Committees, is sponsoring the symposium, **Connections to Germany: Research and Education Opportunities**, at which participants in NESACS's signature German Exchange Program will be featured. The symposium organizer, that self-same Mort Hoffman, has described this

unusual program in detail elsewhere in this issue. Following the symposium will be a reception in the Lighthouse Ballroom 2 of the Seaport Hotel, at which many of NESACS's activities will be highlighted.

On **Tuesday, August 21<sup>st</sup>, from 8:00 to 11:00 AM**, the Younger Chemists Committee and the Division of Business Management are sponsoring the symposium, **Changing Landscapes of the BioPharma Industry**, which will highlight the many novel accomplishments of the biopharmaceutical industry. Symposium organizer and NESACS member, Michael Hurrey, of Vertex Pharmaceuticals has gathered an impressive group of presenters. Patrick Connelly of Vertex Pharmaceuticals will talk about translational product development and the application of advances in physical chemistry and materials science to enhance drug discovery & develop-

ment output. NESACS Chair, Mukund Chorghade, CEO of Chorghade Enterprises, will discuss the multi-disciplinary nature of biotechnology and its effect on the job market. Susan Wolowitz, Vice President of Medivation, Inc, will address the changing landscape of dosage forms, including industry needs and science challenges.

Later that afternoon, **from 2:00 to 5:00 PM**, the Division of Professional Relations will hold a **Symposium in honor of NESACS's Arlene and Ted Light**, the 2007 recipients of the ACS Henry Hill Award conferred by the Division. Organized and moderated by NESACS Chair, Mukund Chorghade, the symposium will include Elaine Diggs and John Sophos of ACS, who had worked with the Lights from the ACS Department of Career Services; Dan Eustace of Multi-Layer Coating Technologies and organizer of many ACS career workshops; and James Burke, former Chair of the ACS Board of Directors. The symposium promises to be a fitting tribute to the Lights' many contributions to ACS and to the career development of its members. The award will be presented at a reception following the symposium, to which all are invited.

And on **Wednesday afternoon, August 22<sup>nd</sup>**, the Division of Professional Relations, with the assistance of the Women Chemists Committee, is hosting another symposium, **Sisters in Science**. Organizer Pam Mabrouk, Past Chair of NESACS, has assembled a distinguished array of speakers who will illuminate accomplishments of African-American women chemists. Jeannette Brown will describe some of her findings during the preparation of her history of African-American women chemists. Esther Hopkins, retired from a variety of careers including those of chemist and patent attorney, and who is currently an elected legislator, will describe "a certain rest-

*continued on page 19*



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# The Northeastern Section's Exchange With Germany

by Morton Z. Hoffman, Ruth Tanner and Michael Strem

The Northeastern Section of the ACS (NESACS), its Younger Chemists Committee (YCC), and its Education Committee will host a visit to Boston in August 2007 by representatives of the Young Chemists Forum (*Jungchemikerforum*, JCF) of the German Chemical Society (*Gesellschaft Deutscher Chemiker*, GDCh) as the seventh annual event of the exchange program between NESACS and GDCh. The German delegation of fourteen graduates, accompanied by Kurt Begitt, Deputy Executive Director and Director of Education and Professional Affairs of the GDCh, will spend a week in Boston at the time of the ACS National Meeting.

The visit will give the German graduate students the opportunity to experience that event, with its associated exposition and social events; interact and network with the other graduate students in attendance; and present the results of their research in a scientific forum. The presence of the German delegation at the meeting will spotlight the ACS international efforts, as demonstrated by the close ties that exist between the ACS and the GDCh.

## Origins of the Exchange

The beginning of the connection between NESACS and GDCh occurred when Michael Strem (Strem Chemicals, Inc.), a member of the ACS Board of Directors from District I (1997-2000) and a member of the NESACS Board of Directors, met Kurt Begitt as part of the rapidly developing ACS-GDCh interaction. Begitt suggested to Strem that his company, which is located in Newburyport, MA, and has an international operation, might wish to exhibit its products at the *Chemiedozentenagung*, the annual March meeting of the GDCh at which postdoctoral fellows, who are searching for an academic job in Germany, present their work to interested German professors. At the meeting in



(l-r) Mike Strem (Strem Chemicals, Inc.), Lauren Wolf, YCC Chair (Boston University), Ruth Tanner (U Mass Lowell), Morton Hoffman (Boston University) at the NESACS poster at the 2005 Exchange in Berlin.

Photo provided by Morton Z. Hoffman.

2000, Strem saw an exhibit by the JCF. He recognized immediately that this group and its members were very similar in purpose and organization, membership age, and stage of professional career to that of the NESACS YCC.

In the course of the *Chemiedozentenagung*, Strem and Begitt discussed

the idea of a cooperative program between JCF and the NESACS YCC, in which each group would alternate hosting the other in Boston or in Germany for one week each year. The plan that evolved would have the visits built around a symposium at which the young chemists would make oral or poster presentations that describe their research work. There would also be visits to academic and industrial research facilities in the geographic area, in addition to social and cultural events that would develop personal interactions among the participants.

Upon his return to Boston, Strem presented the idea to the NESACS Education and Younger Chemists Committees and the Board of Directors and reported that GDCh would be prepared to send a group of German graduate students to Boston in 2001. A committee to organize the Exchange

continued on page 32



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# NESACS Medicinal Chemistry Section

By S. B. Rajur, CreaGen Biosciences  
Program Chair, NESACS Medicinal Chemistry Group

The New England Section of the American Chemical Society (NESACS) is one of the oldest and most active organizations in the nation. The Medicinal Chemistry Section, an active and integral part of NESACS, focuses on the specific challenges and innovative chemistry opportunities in the pharmaceutical area. Officers of the Medicinal Chemistry Section are Program Chair, Treasurer, Directors and Advisors, and these offices may be held by regular NESACS members, councilors and alternate councilors.

The Program Chair has the overall responsibility for inviting speakers, selecting the venue and arranging the dinner. The section conducts an annual long-range planning meeting and three additional medicinal chemistry meetings. Each meeting features a symposium on a specific topic in medicinal chemistry and associated biology. These symposia, well attended by NESACS members and chemistry students alike, involve discussions and presentations on cutting-edge research topics by well-known speakers from global pharmaceutical and biotechnology companies. These meetings are very interactive, informative and educational; they serve as networking meetings, specifically for students who are looking to join the biotechnology and pharmaceutical industries after completing their studies.

Of the three annual meetings, two are joint meetings with the main section and one is conducted independently by the Medicinal Chemistry Section.

With regular meetings and a constant flow of prestigious speakers and networking opportunities, the Medicinal Chemistry Section remains on the forefront of the battle against disease, because such battles are not won simply in the laboratory, but require a healthy exchange of information and ideas. Nowhere has this been more evident than at the several recent Medicinal Chemistry Symposia that focused



on diabetes and oncology.

In 2005, the first Medicinal Chemistry Symposium was held on May 19<sup>th</sup> at the Radisson Hotel in Woburn, MA. The topic for the day was New Targets for Type-2 Diabetes. With the number of people diagnosed more than doubling over the past 15 years, it has become essential for the medicinal chemistry community to gather and compare research interests and ideas. The lineup of speakers at the symposium did not disappoint the 110 participants present. Dr. Javed Iqbal of Dr. Reddy's Laboratories in Hyderabad, India, spoke on a partial PPAR-gamma Agonist (Balaglitazone) for the treatment of Type-II Diabetes. Dr. John Bondo Hansen of Novo Nordisk A/S, Denmark, spoke on Preservation of Beta Cell Function in Diabetes by kir6.2/SUR1 (Openers of  $K_{ATP}$  Channels). The keynote speaker for the symposium was Dr. Steve Tam of Wyeth Research, Cambridge, MA. Dr. Tam's talk dealt with Biostructure-based Development of PTP1B Inhibitors.

Later in 2005, also in Woburn, 200 participants met to hear the cutting-edge research results presented by four speakers on the front in the fight against diabetes. Dr. Mark Tepper, Founder and CEO of CytRx Pharmaceuticals, spoke about how RNAi technology can be used to develop molecular medicines to treat obesity and diabetes. Dr. Sridhar Prasad from Merck Pharmaceuticals explained how X-ray crystallography is used to understand the interactions of small mole-

*Speakers at the May 2007 Symposium on "Lead Optimization Strategies": Prof. L.V. G Nargund, (Nargund Research Foundation, Nargund College of Pharmacy, Bangalore, India), Neal Green, (Wyeth Research, Cambridge, MA), Horst Hemmerle, Discovery Chemistry, (Eli Lilly and Co. Indianapolis, IN), Mark T. Goulet, (Merck Research Laboratories, Boston, MA), Raj (SB) Rajur, Program Chair, (CreaGen Biosciences, Woburn, MA). Photo provided by Raj (SB) Rajur*

cules with target proteins, which in turn can help scientists to design new molecules for the treatment of diabetes. Dr. Murali Ramachandra from Aurigene Discovery Technologies of Bangalore, India, talked about the design and synthesis of DPPIV inhibitors for the treatment of type 2 diabetes. The social hour, networking and dinner were part of the program. The keynote speaker for the evening was Dr. Edwin B. Villhauer from Novartis Pharmaceuticals. Edwin told the story of Vildagliptin, a compound that he designed about 10 years ago, which is now in Phase III clinical trials.

The September, 2005 meeting was held at the Cambridge Marriott Hotel on the topic of Ion Channel Drug Discovery. Dr. Mark Varney, VP of Drug Discovery, Sepracor, was the moderator for the program. Dr. Nancy Barta, Associate Research Fellow from Pfizer, spoke on The Role of a 2- $\delta$  Calcium Channel Subunit in the Biological Activity of Pregabalin. Dr. Francesco Belardetti, Director of Ion Channel Research at Neuromed, spoke on the Discovery of Calcium Channel Blockers by Sequential Use of Fluorescence-Based Screens. Dr. Valentin Gribkoff, VP of Biology at Scion Pharmaceuticals, spoke on the Discovery and Characterization of Openers of Neuronal and Smooth Muscle Potassium Channels. The symposium, concluded with a keynote presentation by Dr. Mark Suto, VP of Chemistry at Icagen.

The 2006 symposia focused largely on oncology. The next symposium was held at the Holiday Inn in Woburn, on May 18<sup>th</sup>. The symposium topic was New Trends In Oncology,

September Meeting:

# Building Bridges Between the Pharmaceutical Industry and Academia



— *A New Paradigm for Drug Discovery*

The next NESACS Medicinal Chemistry Symposium will be held on September 20<sup>th</sup> (Holiday Inn Select Hotel, Woburn, MA) and will focus on the increasing nexus between academic laboratories and the pharmaceutical industry. Drug Discovery is increasingly being done in academic settings, as former industrial scientists and academics apply the research muscle of large research university/hospital complexes to a number of disease areas. Speakers including Dr. Greg Cuny from the Laboratory for Drug Discovery in Neurodegeneration at Harvard Medical School, Dr. David Weaver, Principal investigator at Vanderbilt University Molecular Libraries Screening Center (VUMLSC) and Prof. Iwao Ojima of the Institute of Chemical Biology and Drug Discovery at Stony Brook University will lead a lively discussion on the opportunities, pitfalls and latest research from several top academic drug discovery laboratories. A detailed program will be announced in the next issue of *The Nucleus*. ◇

## Medicinal Section

*Continued from page 8*

Part I. Participating in the symposium was Dr. Hewi-Ru Tsou, Chemical & Screening Sciences Division of Wyeth Research in Pearl River, New York, who spoke on Orally Active, Irreversible Inhibitors of Human Epidermal Growth Factor Receptor-2 (HER-2). Dr. Valeria Fantin from Cancer Biology & Therapeutics, a Division of Merck Research Laboratory, Boston, MA, spoke on Targeting Histone Deacetylase: Development of Vorinostat (SAHA) for the Treatment of Cancer. The third speaker for the day was Dr. Russell Petter, VP of Drug Discovery at Mersana Therapeutics, Cambridge, MA, who spoke on MER-1001: A Novel Polymeric Prodrug of Camptothecin for the Treatment of Cancer. The keynote speaker was Dr. Christopher Straub, Novartis Institutes for Biomedical Research, Cambridge, MA. Dr. Straub's talk focused on Inhibitors of Apoptosis Proteins:

Application of Structure-Based Drug Design to the Taming of a Protein-Protein Interaction Target.

The second symposium for the year also focused on oncology. The 100 participants enjoyed hearing cutting-edge research results that were presented by four speakers from the pharmaceutical industry. Dennis France, Vice President of Oncology Lead Discovery from ArQule Biomedical Institute, Woburn, MA spoke on the topic Beyond Biomolecular Screening: A Multi-Paradigm Approach in Streamlining Early Oncology Drug Discovery. Dr. Beverly A. Teicher, Vice President, Oncology Research from Genzyme Corporation, Framingham, MA, spoke on the development of a Novel Topoisomerase I Inhibitor for the Treatment of Cancer. Dr. Tomi Sawyer, Head, Chemical Sciences, Senior Director, Pfizer Research Technology Center, Cambridge, MA, spoke on Novel Small-Molecule Inhibitors of Oncogenic Protein Kinases: Tackling Selectivity and Resistance. The social

hour, networking and dinner were part of the program.

The keynote speaker for the evening was Dr. Michael Block, Director of Chemistry, Cancer Research Center, AstraZeneca R&D, Boston, MA. Michael spoke on the Development of Selective Aurora A and B Inhibitors for the Treatment of Cancer.

The third symposium of 2006 was held on December 14 at the Wellesley College Club, Wellesley, MA, and the topic was antidepressants. Dr. Lee E. Schechter, Therapeutic Area Head/Director of Depression and Anxiety Research Neuroscience Discovery, spoke on Novel Approaches to the Treatment of Depression. Dr. Ewa Malatynska, Johnson & Johnson Pharmaceutical Research & Development, NJ spoke on Dominant-Submissive Relationships in Paired Animals for Antimanic and Antidepressant Drug Testing. Dr. Phil Skolnick, CSO and Executive VP of DOV Pharmaceuticals, spoke on Broad Spectrum Antidepressants: Molecules, Mice, and Men. The keynote speaker for the evening was Dr. Carol A. Zarate, Chief and Clinical Director of the Laboratory of Molecular Pathophysiology from NIMH, who spoke on Glutamatergic Modulators for the Treatment of Mood Disorders. The symposium was generously sponsored by Sepracor Corporation.

These meetings of the best and brightest medicinal chemistry minds are usually held on the second Thursdays in May, September and December. The joint meetings with NESACS are typically held in September and December. At the December meeting, the Medicinal Chemistry Program Chair, currently Dr. Raj (S.B.) Rajur of CreaGen Biosciences, Inc. invites the Section Chair to address the meeting with brief remarks. During the December meeting, the Section Chair will also speak prior to the keynote presentation.

Cultivating a strong dialogue in the pharmaceutical and biotechnology community has been the goal of the Medicinal Chemistry Section of NESACS. The exchange of ideas and research interests may prove to be one of the most formidable tools in the

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# Frequent Flyer: Reflections on the Academic Job Search

By Anne McNeil

I recently logged 29,316 frequent flyer miles during my search for an academic position. I was anxious during take-off (sending out applications), experienced periods of smooth flying with intermittent turbulence (interviewing), and celebrated after the safe landing (accepting an offer). And as with most trips, I am thankful it is over. As I reflect, I want to share my experiences and hopefully provide some insight for those about to take this journey. However, keep in mind that the experience is unique for everyone.

I had wanted to be a chemistry professor for at least the past ten years, yet every two years, almost as if on a schedule, I questioned this decision and considered other careers. For example, once I wanted to become a lawyer and another time I wanted to be a science journalist. These explorations always ended with the realiza-

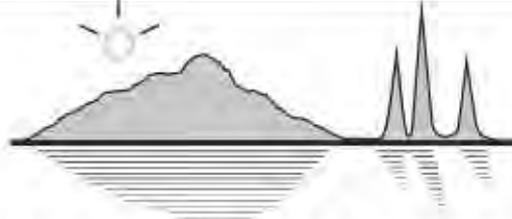


tion that I would be most satisfied, professionally and personally, in an academic position. Just as pilots use runway lights as evidence they are headed in the right direction, I examined where my career was headed as I gained experience and maturity.

My academic job search began last fall. After compiling a list of approximately 65 potential positions, I sought

advice on how many universities to which I should apply. When I asked various advisors I got replies such as “No more than 20” and “100 would be too many.” I set 30 as my goal and applied to 37. One question everyone suggested I ask myself is “If this is my only offer, would I go here?” I found this question difficult to answer without visiting the department because it felt arbitrary; I have never lived in state X, how do I know I would not like it there? In retrospect, I should have trusted my gut instinct. When offers started coming in, I canceled interviews based largely on location.

I was relieved when I got my first interview request. Scheduling these interviews quickly became complicated. The advice I got was to prioritize the interviews. I ended up scheduling the interviews in the nearest available date. If I could go back in



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## Frequent Flyer

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time I would change that aspect. I found it amusing to get a request while I was on a different interview.

I found that every interview was logistically different; some lasted one day, while others were two full days. At some places I gave my research seminar on the first day and my proposal seminar on the second day. On one interview I gave the research seminar, *immediately* followed by the proposal seminar, at the start of the first day! For the one-day interviews, my "lunch" was often during the proposal seminar; at one institution they insisted I eat some of my lunch before starting and when I started to open the first item (potato chips), they said "O.K, it looks like we are all here so let's get started." I got savvy and began packing a granola bar to eat in the bathroom to squelch the hunger pains. Overall, I preferred interviews that lasted 1.5 days, with the proposal seminar near the end; it was much easier to respond to questions after previously having met with each person. Some of the turbulence along the way included missing my first appointment on one interview because someone forgot to pick me up at the hotel. On another, I was dropped off 30 minutes before the departure of the last flight home.

After a while, the interviews started to blend together and it was difficult to keep the details straight. To battle the confusion, on return flights I asked myself "Would I accept if I got an offer here?" My strategy involved writing two summaries: (1) I summarized the entire experience, ranging from the personalities of the colleagues with whom I interacted, the students, the facilities, and whatever was remarkable to me. (2) I also summarized the discussion sessions for *both* seminars; the feedback gave me the opportunity to revise and improve my presentations and ideas. One of the best pieces of advice I received before interviewing was to make a list of questions that were most important to me and ask them more than once dur-

*Continued on page 24*

## Dudley Herschbach to Speak at ACS Meeting

**1986 Nobel Prize Recipient at Silver Circle and Retiree Breakfast on Tuesday, August 21<sup>st</sup>.**

**Register now, space is limited.**

If you are planning to attend the ACS National Meeting in Boston, August 19-24, please attend the **Silver Circle and Retiree Breakfast at the Westin Copley Place Hotel, Flying Cloud Room, from 7:30 to 9:30 a.m. on Tuesday, August 21<sup>st</sup>.**

Guest speaker for the breakfast event is Harvard University Professor Dudley Robert Herschbach, who received the 1986 Nobel Prize in Chemistry Award jointly with Yuan T. Lee and John C. Polanyi. Professor Herschbach will be talking about developing the next generation of chemists and what Silver Circle members and retirees can do today to inspire tomorrow's chemical scientists.

Dr. Herschbach has been a strong proponent of science education and science among the general public. He frequently gives lectures to students of all ages, imbuing them with his infectious enthusiasm for science and his playful spirit of discovery.

**Ticket price** for the plated breakfast is \$12.00. Tickets may be purchased during the national meeting **registration process** - or may be added to your **existing registration**.

Please purchase your ticket as soon as possible or before July 27 (early registration deadline). A few tickets will be available at the door, but seating is limited, so it's advisable to purchase in advance. ◇

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# Getting Ahead: Advancing Your Career Through Strategic Job Searching

by Scott Szczesny, Jillian Savoy and Megan Driscoll, PharmaLogics Recruiting, Braintree, Massachusetts 02184

At the cornerstone of any successful pharmaceutical development program is a well-developed and well-executed plan. Most pharmaceutical professionals would agree that a proactive approach is a key element to success when dealing with day-to-day development issues. They anticipate potential problems and develop systems ahead of time specifically designed to handle the issues that are bound to surface at some point. Pharmaceutical professionals deal in grey areas on a consistent basis and have to weigh the potential risks in decisions they make every day. With proper planning being such an important part of success, it is bewildering to discover the substantial number of scientific professionals who do not apply the same proactive approach to their most important project...their own career.

In the following paragraphs we

will outline some simple strategies for advancing your career through a continuous process of proactive job searching. Most people think of job searching as posting a CV on the Monster board or submitting resumés to companies via on-line methods. A better approach is much more strategic and involves a career-long process which can be broken down into 5 simple steps: (I) establishing an individual development plan; (II) gaining new experience to improve your marketability; (III) creating opportunities within your current company; (IV) establishing and maintaining an active professional network to create external opportunities; and (V) evaluating your progress throughout the process. This might seem like an overwhelming process at first glance, but, as you will learn, it really involves some simple action items that anyone can follow. Whether your long-

term career goals involve moving up the company ladder, making lots of money, ensuring your own job stability, or a combination of these things, following this process will allow you to attain your goals more quickly and will help you to avoid getting stuck in a professional rut.

## *I. Establishing an individual development plan*

The individual development plan is your roadmap to success. It is essentially an outline highlighting your current strengths along with the experience you need to gain in order to attain your long-term career objectives. The first step in establishing your development plan is to set personal goals. This task seems obvious, but not many people actually take the time to physically write down their career goals. Where do you want to be in 5 years? How about in 10 years? When your long-term career goals are written down in black and white, it is much easier to evaluate what you can do this year to get yourself a step closer to reaching them. You may not achieve that Director or VP title that you desire immediately, but the steps you take now will better position yourself to attain that goal in the future. Another benefit of actually writing down your goals is that it will be much easier to realize when you are veering slightly off course. When you recognize a deviation early, a slight reorganization of your priorities can usually get you back on track. Conversely, if you are slow to recognize even a small variance from the course, you will end up having to do some major backpedaling.

Once you have established your career goals, the second step in creating your individual development plan is to update your resumé. Do not wait until you are applying for a new position in order to do this. You should update your resumé at least once per

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## Getting Ahead

*Continued from page 12*

year. Include new certifications and title changes that you have received and significant accomplishments in which you have taken part. Now is the time for some honest self-evaluation. Does your resumé look more qualified for that Associate Director role you desire today than it did a year ago? Share your resumé with a colleague whom you respect and ask him or her to evaluate it critically. If you were to apply for a senior position in their organization, what would they say about your experience? Do the same with a recruiter that you trust. Use your own judgment, as well as these second and third opinions, to identify the experience that you are lacking. Identifying your career goals and updating your resumé allows you to build your individual development plan and begin to monitor your progress. Because you know where you want to go (career goals) and where you are (current resumé), you can map out the experience you need to gain and interim positions that must be attained in order to reach your long-term objective. Your plan should include any training and coursework needed to gain new skills and projects in your company that can expand your knowledge base. Write out the actions you intend to take to move along your path to advancement, including steps to strengthen the weaknesses you have diagnosed.

### *II. Gaining new experience to improve your marketability*

Your career goals are established, you have identified your weaknesses and outlined a development plan. That plan likely includes gaining exposure to new things. Why is this important? The more experience and responsibility that you can demonstrate on your resumé, the more attractive you become to both your current employer and other companies. Read the biographies of executives in your field and you will likely see experience in a breadth of areas and within companies both large and small. This is not a coincidence. Dynamic leaders seek new opportuni-

ties for growth and hiring managers seek candidates whose resúmes demonstrate accomplishments in a variety of settings.

We advise all of our candidates to treat their resumé like investments. Every day that you go to work is a little more time and energy invested into your long-term return. We firmly believe that the experience you gain, especially during the earlier portion of your career, is significantly more important than the wage you are receiving. That is to say, the difference between making \$90K or \$100K this year is insignificant when compared to what you will earn over the course of your career. Of course, all things being equal, everyone would like to make more money today. However, if you are accepting more money to remain in a job with limited growth or learning opportunities, you are hampering your ability to increase your earning potential in the coming years. You should focus on building your resumé and expanding your skill set so that you can command more money over a longer period of time. It would be great to earn \$5K or \$10K more this year,

but if that money comes with the handicap of allowing your resumé to become stagnant then it is certainly not a sound investment decision. Your earning potential over a period of 5, 10, 15 or more years is significantly greater than the extra \$5K or \$10K you would earn this year. The more skills that you can add to your repertoire, the more marketable your resumé becomes and the greater your future earning potential will be.

### *III. Creating opportunities within your current company*

Now that you have scoped out your individual development plan, evaluate the plan against your current position and the potential to grow internally. Understand how far you can advance within your firm. Think this through ahead of time, so that you will anticipate when it is time to move on. Take the initiative to create opportunities for yourself within your current role. These opportunities can range from promotion or transferring into a new group to simply adding new responsibility to your current tasks or gaining a new skill by working on a particular proj-

*Continued on page 14*



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## Getting Ahead

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ect. The best managers have development plans for each of their employees, but, the most successful employees make sure that their boss is aware of their goals as well. For instance, discuss your desire to get involved in an upcoming project or to broaden your horizons by taking part in the next CMC preparation. We constantly hear from candidates who are frustrated that they are not being considered for an open position within their company. However, most of these candidates admit that they have not expressly made their interest in the position known. Make sure that your boss or the senior management team is aware of your desire to be considered for a particular opening or that you would value the chance to work in a different part of the organization. If they do not respond positively about your candidacy, find out what experience you would need to gain in order to be considered for similar positions in the future. Do not rely on your boss to present these opportunities to you.

Stand up and create them for yourself. Timing is everything, and the right time to take on a new challenge is always now. This is a powerful statement, but it rings true in most situations. This includes both taking on new responsibilities within your current company and making a move to a new position externally.

#### **IV. Establishing and maintaining an active professional network to create external opportunities**

Many employees do not think about searching for a new job until they get passed over for a promotion or their company goes through a restructuring. This is a tragic mistake. The best time to look for a new job is when you are happily entrenched in your current position. It is highly unlikely that the right next career step will present itself at exactly the same time that you decide that you want to leave your current company. This is why you should always be actively listening for the right opportunity, even though you may not necessarily be looking. The most successful people identify and accept their next position before they ever

bump up against a glass ceiling in their current role. The truth of the matter is that there is really never a convenient time to change jobs. Professionals on the fast track are always willing to accept new challenges. You can be sure that the Vice President of Research at your company did not get there by chance. There were strategic career moves and goal-oriented time lines set in place that specifically justify their elevated position. There were likely also times when they chose to strike when the iron was hot, rather than to wait because the timing was not convenient. It is important to note that these moves often came along with significant short-term sacrifices to reach the long-term goal. Such sacrifices include relocation to a new city, accepting a lateral salary move or the potential risk of joining a start-up firm or company in transition. These sacrifices can be worthwhile and are often necessary in order to continue advancing on your projected career path.

Maintaining an active professional network is the most obvious way to increase the likelihood that you will hear about interesting opportunities outside your company. Everybody knows that networking is something that they should be doing, but many people are not sure how or why. One of the most common mistakes that people make is to think about networking only when they need something. If you are touching base with your former colleagues, bosses and professors only when you want a new job or need specific answers to a problem you are facing, your network will not bear the fruit you desire. You should keep your network organized in a contact management system to ensure that you have current phone numbers and email addresses and to remind yourself to check in with your peers periodically. Place a call or drop an email when you read news about their company or before heading to a conference. Make them aware of opportunities that exist in your company and they will do the same for you. Networking is a two-way street; it cannot be all take and no give. To keep your network growing, it

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# Philanthropic Gesture Leads to International Friendship

by Lisa M. Balbes, Ph.D.

In the summer of 2006, Dan Eustace (Manager of Health, Safety and Environmental Affairs for Multi-Layer Coating Technologies) found himself with a significant number of journal back issues from his personal subscriptions. These were mainly issues of the Journal of the American Chemical Society and the Journal of the Electrochemical Society. Since the organization to which he had previously donated no longer existed, Dan used the Internet to discover a worthy recipient. He contacted Professor Maximo Baron, at the Universidad de Belgrano in Buenos Aires, Argentina. Maximo was thrilled with the offer, and six M-bags of journals were sent on their way. The initial part of this story was told in *The Nucleus* (Summer 2006, pages 13, 20). Below is the story of what has happened as a result of that donation.

The journals were sent to the Asociación Química Argentina (AQA) in June of 2006, and it took about 6 weeks for the journals to arrive in Argentina.

**LB: What did Maximo say when he received the donations?**

DE: Dr. Baron is a genuine gentleman with a distinctive formal style. In August of 2006, Maximo emailed me to say "So, as the saying goes: ALL IS WELL THAT ENDS WELL. As you can guess the six bags arrived safely last Friday, without any inconveniences. Since you sent them directly to the AQA, as I suggested, we received notice from the Central Post office and one of our staff just went over and picked them up, after a nominal payment."

**LB: Why did you single out Argentina to receive your donation?**

DE: The economy has been very bad in Argentina. They are in desperate



(L-R) are M. Clelia Garnelo (bibliotecaria), Dr. Maximo Baron (director), Dr. Lydia Galagovsky (Universidad de Buenos Aires), Dan Eustace, and Dr. Carlos Durruty (biblioteca).

Photo provided by Dan Eustace

need and have very limited resources. Additionally, my wife, Mary Lou, and I were planning a trip there and I wanted to make some contacts in that country. In fact, Maximo and Dr. Lydia

Galagovsky, a professor at the Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, worked together to organize several special

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# Why I Love Organic Chemistry

By Karla Schallies, Suffolk University, Boston, MA 02108

This is the story of how a biology major learned to love organic chemistry. I transferred to the College of Arts and Sciences of Suffolk University as a junior to complete my biology degree. Suffolk University has many requirements in the hope of preparing well-rounded scientists. One of the requirements of a biology major is to complete two semesters of general chemistry and two semesters of organic chemistry. As my second semester of general chemistry was coming to an end my friends and I started talking about the next step, the organic chemistry course. Everyone talked about how complex and difficult the subject is, and, as is understandable, I started feeling extremely nervous. I had really enjoyed my general chemistry class and performed well academically, but many people I know said that the two courses were not related at all and that getting a good grade in general chemistry did not necessarily mean that you would do well in organic chemistry. I felt discouraged before the course started. Even though I had taken a basic organic chemistry class during high school back in my country of origin, Venezuela, I had not taken another class in over seven years. My nervousness increased and the nightmare of failing the course started to wander around my head. Moreover, I was also concerned that I, being a non-native English speaker because my first language is Spanish, could have problems understanding the terminology that was unrelated to what I had learned in my general chemistry class.

My first day of classes arrived sooner than I expected and, as I was sitting in the classroom waiting for the professor to come, I had an eye-opening moment. I had really enjoyed taking general chemistry and I realized that there was no evidence to suggest that I would not like organic chemistry just as well. Not only that, but ever since I had started college I had realized how important chemistry is to the understanding of biological processes.

With this in mind, I planned on having a chemistry minor, which would require me to take organic chemistry and other extra courses besides the biology requirements and to do well academically. The professor walked into the classroom, thus interrupting my thoughts, and my first impression was that she was young and engaging. Her name is Dr. Denyce Wicht and to her I devote this article.

The class started right away and Dr. Wicht talked about the subject matter, the syllabus, and some very important points that were going to help us be successful in the class. She emphasized the importance of thinking and practicing everyday to be able to understand all of the concepts and reactions that we were going to learn from that point on. I immediately felt better and I thought to myself, "There is hope; this class is not impossible if I study hard." However, students were still a little afraid of the subject. It was then that Dr. Wicht drew two lines together as shown here.



She asked the group what they thought the lines meant and answers started coming, some funny and some very accurate. One student suggested she had drawn the "greater than" symbol in the wrong direction... imagine that! This was the icebreaker that led to laughter and explanations for the entire class. She explained that arrows and lines have very specific meaning to organic chemists. Specifically, from here on in organic chemistry, that symbol must mean propane to us. She also explained that we would never have to be afraid of molecules because we are both bigger and smarter than they are. She continued to explain more and more about molecules and different analytical techniques. Most importantly, she taught us that organic chemistry is not a science requirement that should make students afraid of chemistry or discourage further chemistry studies, but is simply the study of how molecules interact in special and unique ways.

The semester flew like the wind as Dr. Wicht helped all of us understand organic chemistry with jokes, by telling us about her own experiences, and by writing everything down on the whiteboard so that we could understand each word and its importance. One of Dr. Wicht's famous sayings is, "Molecules do not talk," so we have to use our knowledge of chemistry to understand them and be able to communicate with them. She was also great at finding relationships between the textbook's ideas and her own ideas and how all of this could be practical in our world. The class was challenging, but the first semester went by so fast that during the winter break I was eager to start the second semester. I was looking forward to hearing the jokes Dr. Wicht had prepared for the second semester and the new ideas that she would develop to help us enjoy the second part of the class, like the many reactions and names of compounds. She even used animal sounds to help us remember group names, like the donkey sound that will always remind me of the enol group. Everybody in our class was touched by Dr. Wicht's approach to teaching organic chemistry; she made the lectures so enjoyable and involving that the group really bonded and learned many new ideas for their future as chemists. Now I realize that everything she taught was really simple because she took the time to explain it to us and made sure we understood everything at our own pace.

Dr. Wicht not only made lectures interesting, but she also made the laboratories unique. incredible. She introduced Green Chemistry into all of our laboratory procedures. This step became of vital importance in my life as a member of the Suffolk University Student Affiliate Chapter of the American Chemical Society (SU SACS). The SU SACS chapter is very involved in Green Chemistry activities and I feel that having laboratories that support these ideas is extremely valuable. The laboratory gave me confidence in

# Green Chemistry in Africa: Sustainability through Science and Art

Amy S. Cannon, Center for Green Chemistry, University of Massachusetts Lowell



Conference attendees came from Kenya, Botswana, South Africa, Senegal, Nigeria, the United Kingdom and the United States.

Photos provided by UMass Lowell.

## Organic Chemistry

Continued from page 16

knowledge that I use in my everyday life. It taught me about a wide variety of topics, from global warming to performing magic shows for kids using safer chemicals.

Finally, the most important thing Dr. Wicht taught me was to continue working and using all my potential, no matter what class or how hard the subject. This not only gave me the confidence to pass the class with a great grade, but it also influenced my decision to take advanced organic chemistry in the following fall semester. I believe that what makes a professor unforgettable is that he or she helps the students understand the material by making it fun, useful for everyday life, and challenging enough to be enjoyable. There are not many professors like that, which is why I know how lucky Suffolk University, my friends, and I are to have such a dedicated professor for organic chemistry. ♦

In January of 2007 a unique event occurred in Capetown, South Africa. Forty early career chemists from several different African countries met to discuss their research and efforts in green chemistry. They discussed the use of indigenous, renewable resources for the creation of HIV drugs and anti-malaria formulations, along with other issues critical to sustainable research and education on the continent. Meeting with the African scientists were a group of individuals working in the field of green chemistry internationally, there to discuss common opportunities and objectives. Individuals from UMass Lowell, Yale, UC Berkeley, Gordon College, University of Nottingham, Merck, Sappi Fine Paper and Rohm and Haas were participants.

This conference was unique in many ways, but perhaps the most relevant was the participation of a group of African artists. The general public has a large role to play in the acceptance, adoption and dissemination of green chemistry and sustainable practices in society. The public art community is on the "front line" of communication with the general public. Therefore, in addition to the group of chemists, a group of public artists met to discuss their potential roles in creating a sustainable future. Jerry Beck, Artistic Director of the Revolving Museum in Lowell, Massachusetts, helped coordinate the art component.

In a particularly moving portion of the workshop, the scientists attending the conference created and signed the Capetown Declaration, stating:

*We, the undersigned individuals, declare that we will hold ourselves personally accountable to strive to advance Green Chemistry, challenge our peers to take on the same and call on the governments, academia, industry and civil society to advance and support Green Chemistry through:*

- *The application of the principles of Green Chemistry*

- *Highest quality research and development and the creation of new chemistry in the area of Green Chemistry*
- *Educational initiatives on Green Chemistry at all levels*
- *Introduction of Green Chemistry products and processes into the market place*
- *Policies and funding for Green Chemistry*

Further outcomes of the conference were a Green Chemistry Society being set up in Kenya; the governing board of the society was developed before the scientists departed the conference. The artists came together with the scientists to brainstorm ideas around communicating green chemistry to a wider audience. A plan was put in place to bring green chemistry to Africa through several public art projects.

During the conference, scientists in Africa illustrated their great expertise and knowledge in chemistry and



John Warner of UMass Lowell with Scientists from South African Paper Products International, Inc. >From (from left to right): Nelson Sefara, Thobile Matona, Happy Maringa, John Warner (UMASS Lowell), Palesa Mogoregi.

the materials sciences. Africa, with its wealth of resources, provides a wonderful place for green chemistry to grow. More scientists working toward a sustainable future will ensure that we meet the challenge of tomorrow.

The conference was organized by John Warner from the UMASS Lowell

Continued on page 22

# The ACS Scholars Program: Changing The Face of Chemistry

Robert L. Lichter  
Merrimack Consultants, LLC

## I present three axioms:

- *The U.S. chemical enterprise's current practitioners are responsible for shaping its future.*
- *The future of the enterprise depends on the young.*
- *The participants in the enterprise's future and in its leadership must be drawn from every segment of the U.S. population.*
  - *Corollary: diversity of the enterprise's participants is necessary for maintaining its intellectual and economic strength and vitality.*

In 1994, ACS acknowledged that significant segments of the United States' citizenry—specifically, African Americans, Latinos, and American Indians/Native Americans—were not drawn to the chemical sciences and engineering to the extent that their representation in the population would have indicated. Consequently, under the leadership of then-President S. Alan Heininger, ACS set out to address this underrepresentation. Among other undertakings, and with a \$5 million commitment from the ACS Board of Directors, ACS created the ACS Scholars Program. The program's purpose was to provide scholarships to underrepresented students in two- and four-year colleges and universities who intended a career in the chemical sciences and engineering. First awards were made in 1995 and have continued uninterrupted since then. Scholarship support, currently up to \$3,000 annually, is assured for up to four years of undergraduate study as long as recipients maintain an overall 3.0 grade-point average and show continued strength in mathematics and science courses. Key to the program's success

has been the assignment of a mentor to each ACS Scholar to serve as a guide throughout the Scholar's career.

Along the way ACS augmented its initial investment with an additional \$1.5 million in 1998. Equally important, the program has attracted more than \$5.5 million in contributions from 46 corporations and foundations, eight ACS Local Sections (including NESACS), 30 individuals, and more than 60 alumni. All funds go directly for scholarships; ACS underwrites the costs of administering the program, managed with extraordinary dedication and efficiency by Robert Hughes. In 1991 the Scholars Program shared with Project SEED the award of the prestigious Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (that's "Presidential," as in President of the United States).

What has resulted from this investment of time and significant money? Since its inception, the program as of this writing has supported 1,725 undergraduates, slightly more women than men, 55 percent African American, 39 percent Latino, and 6 percent American Indian. Nearly three quarters have majored in chemistry or chemical engineering, roughly in equal numbers. Twelve percent are in biochemistry, and the rest in related majors, including environmental sciences and materials science or engineering. Graduates number 791, roughly in the same demographic and disciplinary proportions as their participation in the program. Of those who have been tracked (a remarkable nearly 90 percent of the participants), 342 are in graduate school, and 301 are in the chemical workforce. More than 20 have received Ph.D. degrees, and sev-

eral already hold faculty positions at colleges and universities. These numbers are not trivial.

The Northeastern Section has participated significantly in the Scholars Program. In the 2005-2006 academic year, 31 Scholars were enrolled in NESACS area colleges and universities. Since the program's inception, more than 115 Scholars have attended or are currently attending colleges and universities in the NESACS area. Of thirty-nine who have already graduated, twenty-nine received degrees from MIT, nine from Harvard, and one from Wheaton. Ten majored in chemistry, twenty-one in chemical engineering, four in biochemistry, two in materials science/engineering, and two in environmental sciences/engineering. A remarkable seventeen are currently in graduate school in these endeavors. One is in law school and planning to go into patent law. Another, Thomas Epps, III, a 1995-1999 ACS Scholar at MIT, completed his Ph.D. in chemical engineering at the University of Minnesota in 2004, did a National Research Council postdoctoral fellowship at the National Institute of Standards and Technology, and is currently an assistant professor of chemical engineering at the University of Delaware, where he has already received an NSF CAREER award for his research.

While a small handful of the remaining ten Scholars have not been tracked, the rest are employed largely in the chemical and related workforce. Interestingly, of the two who are working in the financial industry, one is focused on chemically related businesses. It is striking that a larger fraction of the Scholars chose to attend graduate school than the fraction of chemical sciences and engineering bachelors-degree recipients in general.

These stories make clear that the future is in good hands and that the ACS Scholars Program plays a critical role in keeping it so. NESACS continues to seek ways to engage the Scholars in its activities. A Section ACS Scholars Committee, now in its early stages, hosted a lunch earlier this year

*Continued on page 19*

## Boston Meeting

*Continued from page 6*

lessness.” NESACS Board member and ACS Councilor, Dorothy Phillips of Waters Corporation, will discuss the roads that unite R&D and business careers. Gilda Barabino, Professor at Georgia Institute of Technology, will speak on African-American women and research in the Academy. And Sharon Neal, Professor at the University of Delaware will give her view of the life of an African-American woman in academia.

These symposia illustrate the range of interest and engagement that NESACS members display. Be sure to attend! ◇

## ACS Scholars Program

*Continued from page 18*

for Scholars in the area. At the same time, many opportunities exist for individual NESACS members to touch the lives of these students. The Scholars are always looking for rewarding summer employment opportunities. The program continues to seek financial support to sustain itself and to grow. The need for mentors to advise, guide, and support the students remains vital to the program's success. If you are interested in working more closely with the program or have ideas for activities, please contact Bob Lichter at [RLichter@MerrimackLLC.com](mailto:RLichter@MerrimackLLC.com). Further information about the program is available at [www.chemistry.org/scholars](http://www.chemistry.org/scholars).

**Acknowledgments:** The author is indebted to Robert Hughes, ACS Scholars Program Manager, for providing the data, and to Drs. Pam Mabrouk and Mort Hoffman for their helpful comments.

### Additional reading:

“Donors Invest in ACS Scholars Program,” *Chemical & Engineering News*, **85**, 58 (April 23, 2007)

“ACS Scholars Celebrate Anniversary,” *Chemical & Engineering News*, **80**, 35-37 (October 17, 2005) ◇

# Chemistry Exams Bring Students Together

By Steve Lantos, Brookline HS, Brookline, MA

Until his passing in 1970 Avery Ashdown was for many years an outstanding professor of chemistry at MIT and a tireless supporter of chemical education within the Northeastern Section. The NESACS Education Committee established an examination contest in Professor Ashdown's name, and since 1985 the exam has also served as a qualifier for the nationally administered United States National Chemistry Olympiad (USNCO).

The Ashdown Exam, a challenging 100-minute/100-question test of students' chemical knowledge, is typically given the first Saturday in April at Simmons College. Offered to both first- and second-year chemistry students, the exam has for nearly thirty years brought together young participants and their teachers to demonstrate their interest and knowledge. Cash prizes, Honorable Mention certificates, and books, are given to top scorers. These awards are presented to students, and their teachers are also recognized at the annual Education Night held in mid-May. Although the national ACS Exams Institute offers standardized 60-question exams to sections throughout the country for use as qualifying exams for the USNCO, our section has historically chosen to write its own lengthier exam. This exam is meant to challenge our top students, recognizing the high caliber of our section's participants. Teachers who have traditionally sent students to the Ashdown are familiar with the format and preparation for the exam. **Additional schools and students are encouraged to participate.**

Students often remark after the exam that, although difficult, the test is good preparation for their Advance Placement (AP) exams. The Simmons College Chemistry Department has traditionally supported the exam and the USNCO by offering rooms, lab space, and support. There is historical prece-

dent for this; Simmons has long shared a connection to MIT, and their respective chemistry departments collaborate.

The USNCO has been offered nationally to high school students since 1984, the first year the US participated in the International Chemistry Olympiad (IChO). Fewer than 1000 students qualify to take the USNCO, typically given in mid-April. The USNCO itself is a three-part exam that consists of 60 multiple-choice questions, an eight-part free response section, and a two-part laboratory practical test. Simmons College hosts the roughly two dozen students from across our section who typically qualify to sit for the USNCO. Twenty of the top scorers nationwide are then invited to an intensive two-week student camp at the U.S. Air Force Academy in Colorado. From this group four students are ultimately selected to represent the US at the International Chemistry Olympiad (this year held in Moscow, Russia).

The Ashdown Exam draws more than 100 students from nearly 30 public and private schools throughout the section. Increased participation, especially from school districts less often represented, is always a goal of the HS Education Committee. We're interested in sharing chemical education and fostering involvement throughout the section. We encourage members to spread the word.

For additional information, sample exams from previous years, registration, and questions about the Ashdown, see [www.nesacs.org](http://www.nesacs.org); for additional information about the USNCO, see <

<http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=education%5Cstudent%5COlympiad.html>>.

Steve Lantos, Chairperson

NESACS HS Education Committee and USNCO Lab Practical Task Force Chair ◇

# ALMA Local Chapter

## *An Update*

by Larry Murphy,  
Cabot Corporation, Billerica, MA

The New England local chapter of the Analytical Laboratory Managers Association is now a little over one year old. The inaugural meeting was held on April 4, 2006, and membership has grown to over 55 members.

ALMA's unique strength lies in providing a forum for analytical managers to interact with other managers who have similar problems and are willing to share solutions that have worked in their laboratories. To do this ALMA conducts annual conferences that focus on effective management of the analytical laboratory. The conferences include short courses that cover various aspects of managing a laboratory. The association also publishes a peer-reviewed publication, as well as periodic newsletters. There are six local chapters across the country that enable meeting attendance for those who cannot attend the annual meeting, as well as serving as a forum for more frequent networking and sharing ideas about managing an analytical laboratory. The New England chapter is the newer of the local chapters and one of the largest, drawing on participants from Rhode Island, Connecticut, Massachusetts, Maine, New Hampshire and Vermont.

The New England chapter has now had 4 meetings. The meetings are typically held during a weekday morning, usually starting around 9:30 and ending around 12:30. The meetings start with an informal gathering of attendees where old friends catch up on news and new friends have an opportunity to network. Each meeting has a learning topic. This tends to be an active time where not only is the presenter engaged but also the audience participates, resulting in an active sharing of information. After the presentation and question period, lunch is served, followed by a session focused on planning for the next meeting including decisions regarding the next

topic, date and location; this ensures that the local chapter is member-run.

The inaugural meeting of the local ALMA chapter was covered in The Nucleus' Summer 2006 issue. Since then there have been three more meetings.

The second meeting was held at Thermo Electron in Waltham, MA, where the topic was Using Benchmarking Metrics to Improve Laboratory Productivity, presented by Dr. Wayne Collins. The reasons for benchmarking were given, along with some very interesting examples of how some companies have used benchmarking to improve their products or processes.

The third meeting was held at Cabot Corporation in Billerica, MA where the topic was Restriction of Hazardous Substances (RoHS), presented by Stephen Green of Mabbet & Associates. RoHS is a European directive with which companies need to comply in order to place products on the European market. This directive places restrictions on new electrical and electronic equipment where compliance levels must be met for lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants. Other parts of the world are implementing alternative versions of RoHS. The analytical laboratory needs to know the regulations in order to support the needs of their businesses.

The fourth meeting was held at W.R. Grace in Cambridge, MA, where the topic LIMS was presented by Gloria Metrick of GeoMetrick Enterprises. Gloria presented an overview of what Laboratory Information Management Systems are and what they are not. Organizations can get into trouble if they try to have a LIMS do everything, such as documentation or inventory management. LIMS is essentially

# My Research Experience

by Amrita Karambelkar

I peered down at my sample of bacteria calmly sitting in the ice bath. Examining the small test tubes, I measured out exact proportions of DNA solutions with a microliter pipette. Lab was one of my favorite activities in my AP classes; I always wanted a front row seat. At times, I remember being disappointed when working on labs with the whole class and everyone could not actively participate. I enjoyed immersing myself in the numerous handouts and calculations for assignments ranging from bacteria transformation to gel electrophoresis. My passion for science and research led me to look for a summer internship during the summer before my senior year of high school.

I secured a volunteer internship in Professor Athan Kuliopulos's group at the Tufts-New England Medical Center (NEMC) Molecular Oncology Research Institute (MORI) laboratory in Boston for six weeks in the summer of 2006. This was an invaluable experience because my previous knowledge of working in a lab setting was rudimentary. I was soon taught basic procedures, such as labeling tools correctly and autoclaving instruments.

*Continued on page 36*

about sample tracking, data storage and a controlled database to manage testing. Information about how to select a LIMS vendor was also presented.

The next meeting is scheduled for Thursday, September 27, 2007 at E-Ink in Cambridge, MA, where the presentation topic will be "Behavioral Interviewing for the Analytical Laboratory Environment," presented by ALMA member Lynne Garone, Senior Director of Analytical Technology at E Ink Corp.

For additional information contact Larry Murphy at [Lawrence\\_Murphy@Cabot-Corp.Com](mailto:Lawrence_Murphy@Cabot-Corp.Com). ◇



# National Chemistry Week Events



*Celebrating*

## The Many Faces of Chemistry & 20 Years of NCW

### October 21, 2007 – Museum of Science Boston

- *Phyllis A. Brauner Memorial Lecture by Dr. Bassam Shkhashiri*

Dr. Bassam Shkhashiri is a Professor of Chemistry at the University of Wisconsin-Madison and is the William T. Evjue Distinguished Chair for the Wisconsin Idea. Professor Shkhashiri has captivated audiences with his scientific demonstrations at a variety of locations including Boston's Museum of Science, the National Academy of Sciences and the Smithsonian's National Air and Space Museum in Washington. Taking place in Cahners Theatre (2<sup>nd</sup> floor, Blue Wing) at 1 pm and at 3 pm.

- *Kicking off National Chemistry Week 2007 Festivities*

Join us in a variety of hands-on activities related to the yearly theme. Taking place from 10:00 am – 2:00 pm on October 21, 2007 in the lower level of the Blue Wing.

### October 27, 2007 – Boston Children's Museum

From 11 am – 4 pm, NCW volunteers will be on-hand throughout the museum to perform demonstrations and assist in hands-on activities related to the yearly theme.

### September 15 – October 10, 2007

K-12 students participate in the NCW **poster competition**.

Visit [www.nesacs.org](http://www.nesacs.org) and

[http://www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=ncw\ncw\\_index.html](http://www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=ncw\ncw_index.html)

for more information.

### October 21 – 27, 2007

Grades 1-12 may participate in the **puzzle contest**. See [www.nesacs.org](http://www.nesacs.org) or the October 2007 issue of the Nucleus for the puzzles and contest information.

# History of Pencils

By Alfred Persson, MD

In ancient Rome, scribes used a stylus made of lead to make marks on papyrus. They called these devices pen-cillus or "little tail". The only similarity to the objects we use today for writing on paper is their size and their name.

In the early 1500s an enormous deposit of pure graphite was discovered at Seathwaite Falls near Borrowdale, England. It is the largest deposit of pure, high-grade graphite ever discovered in the world. It was soon discovered to be an excellent medium for marking sheep and for making into sticks for use as writing instruments.

When it was discovered that graphite was also very useful for making molds for cannon balls, the British Crown took over the mine. The mine was guarded around the clock and only graphite that was smuggled out was used for pencils.

By the early 1700s the "lead" was square and the pencils were encased in wood. Most of the graphite came from China. Almost all the pencils were made in England or Germany. They used powdered graphite mixed with sulfur and antimony. During the Napoleonic era German and English pencils were not available in France. In 1795 a French chemist named Nicolas Jacques Conte patented a method of mixing graphite with various amounts of clay and hardening them in a furnace. After the defeat of Napoleon, Conte's method of making pencil became the norm. It is this method that is used today to make almost all pencils.

The graphite cores were placed in a wood case to give them stability. A groove was cut in a piece of wood and the graphite inserted into the groove. This was then covered with a flat piece of wood and the two parts glued together. The first pencils were square, but when mechanical sharpeners became available round pencils were developed.

Henry David Thoreau, the transcendentalist philosopher, is credited

with developing a method of drilling a round hole in a cedar stick and sliding a core of graphite into the hole. His father used Henry's idea in his pencil factory in Concord, MA. Henry used pencils manufactured in his father's factory to write *Walden*.

At this time cedar was the main wood used. At first it was cedar from the mountains of New England, but soon Western Cedar became the wood of choice. On March 30, 1858, Hymen Lipman of Philadelphia, Pennsylvania was granted a patent for attaching an eraser to the end of a pencil. Prior to that "Indian Rubber" was sold for use as an eraser. Lipman's patent was challenged and invalidated because it was not considered a "new" idea but just the combination of two known devices.

In the early 1800s the best graphite for making pencils came from China. In China, yellow is the color of royalty. L. & C. Hardtmuth of Austria colored their pencils yellow to reflect this. Most of the rest of the world's pencils at the time were either natural wood or painted brown.

With the advent of the word processor pencils have become less popular, but in 1912 two billion pencils were manufactured and sold worldwide.

*Reprinted with permission from "Grandpa's Newsletter", April 2007, by Alfred Persson.*

*Note from Don Rickter; About 2.8 billion pencils are now manufactured in the U.S. annually* ◇

## Green in Africa

*Continued from page 17*

Center for Green Chemistry and Dana-Lee Smirin from the UC Berkeley College of Natural Resources. Funding for the conference was provided by Sappi Fine Paper, Rohm and Haas, Merck, The Kendeda Fund, The Seldon Fund and the ACS/GCI Chemrawn XIV international activities program. ◇

# Letter to the Editor

Dear Dr. Filosa,

I noted with great interest the review of "Nontraditional Careers for Chemists: New Formulas in Chemistry," by Lynne A. O'Connell in the April issue of the Nucleus.

It might interest your readers to know that the photographs used in this book were taken by Dana Lipp, a member of the NESACS. Dana earned a B.S. in Chemistry from Bridgewater State College and has, himself, had a nontraditional career in chemistry working both as a chemist and as a photographer specializing in technical subjects. His website, describing his work, can be found at: <http://www.danalipp.us/>.

Regards,  
Frank Gorga

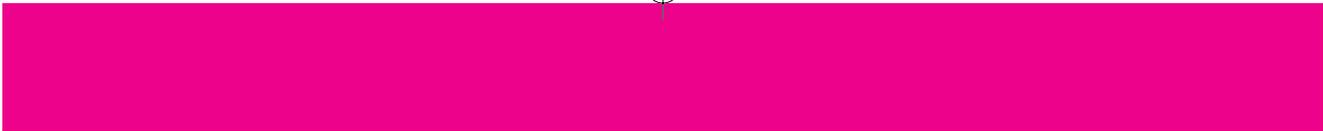
Frank R. Gorga, Ph.D.  
Professor, Dept. of Chemical Sciences  
Bridgewater State College  
Bridgewater, MA 02325 ◇

## Medicinal Section

*Continued from page 9*

fight against diseases like diabetes as we continue to gather the best and most innovative thinkers in the fields of pharmaceutical research and biotechnology.

The current officers of the medicinal chemistry group are as follows: Program Chairs, Dr. Raj (SB) Rajur, CreaGen Biosciences, Inc., Woburn, and Dr. Liming Shao, Sepracor, Marlborough, MA. The Program Chairs thank Dr. Norton P. Peet for his role in introducing the symposium topics and speakers and chairing the sessions. ¶Following are the board members of the Medicinal Chemistry Section: Drs. Jim Burton, Tim Frigo, Mark Froimowitz, Patrick Gordon, Ernest Groman, Barry Morgan, Pamela Nagafuji, John Nestor, John L. Neumeyer, Jim Quick, Craig Siegel, Michael Singer, and James Weinberg. ◇



# 4th Annual Women Chemists Committee and Northeastern Section Golf Tournament

*(held in conjunction with the 234th National ACS meeting in Boston, MA)*

All proceeds from this tournament  
support WCC and NESACS programs

## August 22, 2007

**Golf - 2 pm**

**Buffet Dinner - 7 pm**

**Awards - 8 pm**

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### *Sponsored by*



## Frequent Flyer

*Continued from page 11*

ing each interview. I also asked the assistant professors at each university if they were satisfied with their choice, and if not, why? I was surprised at the candor of their answers.

It is hard to say how many interviews are too many, I can only offer this tidbit: I went for 16 interviews and now wish I had limited myself to 12. I can say with confidence (and from firsthand experience) that three interviews in one week are too many. It is tempting to squeeze them in, especially for those requiring cross-country flights, but I would have been better off making another trip or staying over the weekend. As the interviews wound down, I reflected on the earlier ones and contacted the previous search committee chairs. In some cases, I withdrew my application and in others, I asked where I was in their pool of candidates and what was their timeframe. Everyone was on a different schedule and so I had to make some decisions without having complete information.

The second visits were simply a lot of fun, despite battling a miserable head cold at one place (while the temperature dipped to -10 °F) and being snowed in for an extra two days at another. I was surprised that my initial impressions had been accurate, even though the interviews had taken place months ago. The hospitality was incredible; when I got snowed in, one professor and I made brownies, relaxed in her hot tub, and drank excellent wine. I consider myself incredibly lucky to have found two universities where I believe I could be happy and successful.

In the end, I chose based on best overall fit, which is both multifaceted and personal. On February 19<sup>th</sup> 2007, 29,316 miles later, I accepted an Assistant Professor position at the University of Michigan, Ann Arbor. I am looking forward to joining a department with such outstanding faculty, students, and staff. Go Blue! And being a huge college hockey fan, I am happy to be trading in my MIT Beaver

for a Michigan Wolverine.

Overall, I found interviewing to be a tremendously enjoyable experience, in that I was able to meet many of my scientific heroes, sometimes even having stimulating conversations over dinner with them. I met many chemists outside my research areas and gained insight into 16 chemistry departments across the nation. As a result, in three short months my knowledge of chemistry broadened exponentially. It was also encouraging and exciting to meet scientists of my generation and discuss the future of chemistry. The downside, of course, is that I put on six pounds eating at some of the nation's best restaurants.

It turns out that the layover between my two journeys has no clear transition. Since making this decision I have experienced a gentle tug-of-war between preparing for the future and finishing my post-doctoral research project. March was recruiting season, April brought the first grant deadlines, and May has been occupied with purchasing equipment and advising (from a distance) my first two graduate students. It's quite amazing how quickly the transformation from job seeker to assistant professor occurs.

Last, I would like to thank the many people (too many to name) who have provided guidance throughout my career; in particular, I thank my research advisors, Professors Timothy M. Swager and David B. Collum, and my informal career advisors, Professors D. Tyler McQuade and Sarah E. O'Connor. I now forfeit my seat to the next batch of passengers. For in-flight service, they may contact me for assistance at [ajmneil@umich.edu](mailto:ajmneil@umich.edu). ◇

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## Philanthropic Gesture

*Continued from page 15*

events during our trip, in part as a thank you for the donation.

**LB:** *What did you do with them while you were there?*

DE: Upon our arrival in Argentina, we received a welcoming phone call from Maximo himself. He was our first official tour guide of Buenos Aires; he picked us up at the hotel, walked us to the underground, and provided informal glimpses of various parts of the city.

He took us to the headquarters of the AQA, where we had coffee and cookies and were formally greeted by the staff. Maximo showed me where the journals were in the library. It was a fledgling collection of various older items; a library shelf was filled with the recent addition.

After about an hour he rode with us back to the hotel and asked me if I would be willing to meet the executive committee of the AQA in three days.

It seemed as though I was in for more than I had bargained for. There was a sincere appreciation that was tangibly felt.

**LB:** *Did you end up meeting with the board members?*

DE: Yes, on the following Tuesday I was invited to meet and then present and lead a discussion with seven esteemed scientists from all the leading institutions in Buenos Aires. Besides Maximo and Lydia, there were Hector Torres, Rosaria Sorriano, Neomi Walsoe deReca, Eduardo Castro [president] and Carlos Alberto Azize. We talked about chemistry, the state of our profession, our experiences and cultures.

We spoke about ways of sharing resources, creating opportunities, and filling gaps and brainstormed ideas on how to help each other. At the end of the discussion, I was invited to write a series of articles for their magazine, *Industria y Quimica*, on a topic of my choosing. I took them up on this offer, and the first article is in the process of

*Continued on page 26*

# REPORT FROM COUNCIL

*American Chemical Society  
233rd ACS National Meeting  
Chicago, IL  
March 28, 2007*

## Election Results

The Committee on Nominations and Elections presented to the Council the following nominees for selection as candidates for President-Elect, 2008: Pat Confalone, Thomas Lane, William Nugent, and Howard Peters. By written ballot the Council selected Lane and Peters as candidates for 2008 President-Elect. These two candidates will stand for election in the Fall National Election.

The Committee on Nominations and Elections announced the results of the election to select candidates from the list of nominees to represent District II and District IV on the Board of Directors for the term 2008-2010. By mail ballot the councilors from these districts selected Joseph Peterson and Diane Grob Schmidt as District II candidates, and Eric Bigham and Gregory Robinson as District IV candidates.

## Candidates for Directors-at-Large

The Committee on Nominations and Elections announced the selection of the following candidates for Directors-at-Large for a 2008-2010 term: Janan Hayes, Helen Lawlor, Kent Voorhees, and Frankie Wood-Black. The election of two Directors-at-Large will be conducted in the fall; ballots will be mailed to the Council on or before October 10.

## Committee Performance Reviews

As part of a regular review, the Council VOTED to continue the Committee on Science, the Women Chemists Committee, and the Younger Chemists Committee subject to concurrence by the Board of Directors. The Committee on Science provides an organizational framework to facilitate policy formulation, actions, and planning in several areas of ACS activity directly related to the science of chemistry; the

Women Chemists Committee was established to recognize women chemists and to encourage them to take an active interest in Society activities; the Younger Chemists Committee facilitates communication of ideas and attitudes between the governing bodies of the Society and younger chemists.

## Petitions

The Council received petitions for three amendments to the ACS Bylaws for action: the Petition on Election Procedures 2006, the Petition on Rules for Nominating Members of the Committee on Nominations and Elections (N&E) for National Offices, and the Petition on Multi-Year Dues.

The Council VOTED to split consideration and action on the Petition on Election Procedures 2006 into two parts: Part 1 changes the timing of run-off elections and specifies an election process for situations in which only one Director-at-Large position is open.

Part 2 addresses consistency in national election procedures. It proposes changes to standardize the petition and election processes for President-Elect and all Director positions based on percentages of voting members. It replaces language specifying a required absolute number of petition signatures for nomination of candidates for President-Elect, and Director-at-Large with language specifying a higher requirement for petition signatures as a percentage of the membership for nomination of candidates for these offices.

The Council VOTED to accept Part 1. For Part 2, the Council VOTED to recommit this petition back to the Committee on Nominations and Elections and ask that it reconsider the signature requirements, procedures for processing electronic signatures, and

those suggestions arising from the Governance Review Task Force pertinent to election procedures.

The Petition on Rules for Nominating Members of N&E for National Offices would establish a one-year waiting period following service on N&E before an individual can be nominated for District Director, President-Elect or Director-at-Large. The Council VOTED by recorded vote to defeat this petition.

The Council VOTED to accept the Petition on Multi-Year Dues. This petition will allow members paying full dues without any of the discounts to pay for periods of two or three years if they wish, at a rate equal to two or three times the rate for a one year period. Council also VOTED to make this petition effective when technical components are instituted to offer and track the payments, but no later than January 1, 2010.

The Board of Directors will vote within 90 days on whether to ratify the approved petitions.

The Council received one petition for consideration: the Petition on Local Section Affiliations. The petition addresses a difference in current Society bylaws regarding the responsibilities of the Committee on Local Section Activities (LSAC) and the Committee on Divisional Activities (DAC) in oversight of the establishment of affiliations by local sections and divisions, respectively. The petition grants responsibilities for LSAC parallel to those currently established for DAC. Action is expected on the petition at the fall national meeting in Boston.

## 2008 Member Dues

The Council VOTED to set the member dues for 2008 at the fully escalated

*Continued on page 26*

## Report From Council

*Continued from page 25*

rate of \$136. This rate is established pursuant to an inflation-adjustment formula in the ACS Constitution and Bylaws.

### The Society's Finances

The Society ended 2006 with a net contribution from operations of \$12.2 million, on revenues of \$424.0 million and expenses of \$411.9 million, which was \$7.8 million favorable to the approved budget. The favorable variance was primarily attributable to higher-than-budgeted electronic services revenue and investment income, as well as expense savings from lower-than-budgeted health care costs and reduced IT spending. In addition, the Society ended 2006 in full compliance with the Board-established financial guidelines.

### Registration Report

As of March 27, 2007, the ACS fall national meeting had attracted 14,520 registrants as follows: Regular attendees 7,152; Students 5,059; Exhibitors 1,283; Exposition only 573; and Guests 453.

### Future National Meetings

The Council VOTED to approve dates and sites for 2017 national meetings as follows: April 2-6, San Francisco, California; and September 10-14, St. Louis, Missouri.

### New Local Section

The Council VOTED to establish the Snake River Local Section with headquarters in Boise, ID. This brings the total number of local sections to 190.

### Member Statistics

ACS closed 2006 with 160,491 members, the highest year-end membership since 2002. Of the 17,857 applications processed in 2006, more than 1,000 came from the Member-Get-A-Member campaign, in which many councilors participated.

### Governance Review

The Council received a report on the

recent activities of the Governance Review Task Force. Councilors were informed that since the last Council meeting, the task force has met twice and action teams have been actively addressing those areas under the "Advance" category. Councilors also learned that the Council Policy Committee and the Board of Directors VOTED, as recommended by the Governance Review Task Force, to accept four recommendations under the "Refine" category.

### Chemical Professional's Code of Conduct

The Council VOTED to approve the Chemical Professional's Code of Conduct as submitted by the Committee on Economic and Professional Affairs. This document offers guidance for Society members in various professional dealings, especially those involving conflicts of interest.

### Resolutions

The Council adopted resolutions in memory of deceased councilors and ACS Past Presidents Robert Parry (1982), and Fred Basolo (1983). ◇

## Wanted by Nucleus Editor

### Participants in Charitable Fundraising

The Nucleus Editor would like to write an article about NESACS members or their close family who are participating in fundraising walks, runs and bicycle rides. Examples of such events include the *Pan Mass Challenge*, the *Jimmy Fund Walk*, *Volvo Best Buddies Challenge*, *Special Olympics Ride with the Champions* and *Susan G. Komen Race for the Cure*. If you are interested in sharing your experience with the readers of *The Nucleus* please contact the Editor, Michael Filosa, at [filosam@verizon.net](mailto:filosam@verizon.net) or 508-359-4242. ◇

## Philanthropic Gesture

*Continued from page 24*

being translated into Spanish.

### LB: Do you have plans to return to Argentina?

DE: We have made a tentative proposal to return later this year, in fact. We have been invited to visit several universities and research institutes and would like to be a friendly ambassador for chemistry.

### LB: Did you suggest donating journals this way to anyone else?

DE: Yes, I suggested it to many people. One member offered to donate 30 or 40 years of the *J. Phys. Chem.* and the *J. of the Electrochemical Soc.* Unfortunately, this large donation never made it to Argentina for logistical reasons. Recently, ten years of *Tetrahedron Letters* were donated by John Buchanon, also to Argentina. We were more careful this time.

### LB: What is the most striking thing you learned through this experience?

DE: We are most privileged as scientists living and working in the US. I realized that I can gain more by sharing what I have than by keeping it stored on shelves in my basement. I gained an introduction to some most friendly scientists, an opportunity to be an ambassador for American chemists, and the appreciation, though not directly, of researchers and chemists 10,000 miles away by a small unassuming act.

*Lisa M. Balbes, Ph.D. has been providing scientific writing services, customized technical writing workshops, and seminars on career development for scientists since 1992, as Balbes Consultants. She authored "Nontraditional Careers for Chemists", published by Oxford University Press in 2006, and has been a career consultant for the American Chemical Society since 1993. She can be contacted at [lisa\(at\)balbes.com](mailto:lisa(at)balbes.com). ◇*

# NESACS Chemical Education Opportunities

The Education Committee of the Northeastern Section supports and promotes academic program activities that showcase chemical education for undergraduates at the college/university level and for students and teachers at the high school level. These programs are also to develop a professional outlook toward chemistry among the students actively interested in chemistry. Through announcements in *THE Nucleus*, postings on the NESACT website, and e-mail and direct mailings, information about these activities is provided to the section members, to the student affiliates, and to the educational institutions.

The Committee offers financial support for a variety of programs that include scholarships for full time undergraduate summer research, and travel grants that are matched by the awardees' institutions to attend and to present a paper at the Undergraduate Research Poster Session in the Division of Chemical Education at the national spring ACS meeting. In addition, the Education Committee and the Younger Chemists Committee (YCC) co-sponsor an exchange of chemistry students to Germany as the guests of the *Jungchemikerforum* (JCF) of the *Gesellschaft Deutscher Chemiker* (GDCh). While in Germany, they join approximately 200 young chemists from at least 15 countries at an international conference to either present their research in a poster session or in a seminar format. Tours to German chemical companies are included with time for sightseeing. A complete itin-

erary is available on the NESACS website.

Other activities include the Northeast Regional Undergraduate Day and the Northeast Student Chemistry Research Conference (NSCRC). The ACS Scholars Program is also an activity of the Committee that acknowledges these chemistry scholars who are studying in the Boston and surrounding areas and encourages their participation in the Section's activities.

The NSCRC, co-sponsored with the Younger Chemists Committee, brings together undergraduates, graduate students and postdoctoral fellows from the northeastern region of the country for the purpose of celebrating their accomplishments in research, and for providing a forum for the sharing of ideas and scientific understanding. Poster presentations are given by the students in addition to oral presentations. Following the presentations, awards are given for the outstanding graduate and undergraduate speakers and for the outstanding poster presentations. In addition, a presentation of the Phyllis Brauner Undergraduate Book Award is given for the best presentation by an undergraduate student.

The Northeast Regional Undergraduate Day brings together undergraduates from all over the northeast for presentations by well known chemists, for career and resume' workshops, and to meet representatives from graduate schools to discuss their graduate programs in chemistry. In addition, a workshop is provided for the students to meet and discuss their student affiliate organizations and activities.

The Education Committee also sponsors programs for High School Teachers and awards for Teaching Excellence. In addition, grants are given to attend professional meetings. The Lyman C. Newell Grants provide financial assistance to attend the annual summer conference sponsored

by the New England Association of Chemistry Teachers (NEACT). This year, registration grants are being made available to high school chemistry teachers to pay for registration for the national ACS meeting in Boston, MA.

A specific program that is sponsored for high school chemistry teachers is called *Connections to Chemistry*. It is a unique program to connect high school chemistry teachers to the educational resources of the ACS and to the members of the Northeastern Section. Several hands-on workshops are offered to showcase the educational resources that are available for the high school teachers and their students. The topics last year were Engineering with Chemistry, Paint Your World (to highlight the National Chemistry Week theme), Simplified Data-Acquisition, A Winning Chemistry Club (the new initiative to start student affiliate groups in high school) and Exploring Quantum Concepts in Chemistry (using a specific data base and computer program). The evening program includes dinner, and keynote address, and a raffle of ACS logo items, subscriptions to the Journal of Chemical Education, memberships in CHED and in the Chemistry Teacher Connection (CTC). Participants are given a certificate awarding professional development credits, a year's subscription to *ChemMatters* and a year's associate membership in the NESACS.

*A more detailed and complete account for all of the programs of the Education Committee can be accessed at the NESACS website <http://NESACS.org>.*

Article provided by Ruth Tanner, Chair, Education Committee, NESACS ◇

**Looking for seminars  
in the Boston area?**

Check out the  
NESACS Calendar

[www.nesacs.org/seminars](http://www.nesacs.org/seminars)

Your one-stop source to career-related  
links in the Chemical Sciences

**WWW.NESACS.ORG/CAREERS**

## Getting Ahead

*Continued from page 14*

is vital to get out and meet new people. Be active in your local ACS chapter or whichever organizations align closely with your interests. Do more than just attend meetings for the free cocktails. Write a paper or present a topic. Volunteer to work at a show or lead a discussion group. This makes it much easier to meet new and successful people and to get your name out among your peers.

You should also make an effort to establish and maintain relationships with recruiters who specialize in your field. Take their calls and share information when you can. After a conversation or two, it is easy to differentiate between the couple of recruiters who truly know your field and can be a valuable resource to you versus the ones whose messages can be ignored. Bear in mind that this relationship is a two-way street as well. A recruiter's livelihood is based entirely on networking. If you share information and leads with them they will certainly return the favor. When recruiters get a new and exciting search assignment, the first people they call are the ones they know and those who have been helpful to them in the past.

Monitor the progress of other companies in your locality. Let your colleagues and recruiters know of your interest in a particular firm and you are much more likely to hear about the opportunities that do exist but do not pop up on their website career pages. Recruiters really value relationships with candidates and view them as partners. They spend a lot of time specifically targeting companies to uncover or create opportunities for candidates based on the information that they share about their interests. More often than not, a good recruiter will have the appropriate contacts to get your resumé the desired exposure at companies that intrigue you. Giving them the chance to make confidential inquiries into specific companies is a fantastic way to create opportunities for yourself. As always, staying proactive is the key to moving forward and achieving your goals.

Another way to create opportunities is to look for reasons to explore a position rather than looking for reasons to ignore it. When considering an opening at a new company, always keep an open mind. Do not rely on what you have heard about a particular employer from others. Just because it was not the right environment for someone you know does not mean it that you will have the same experience. You should always check it out and make your own judgment. Bear in mind that what you see on a job posting is not always the full story. Too many people immediately rule out potential positions based purely on title. What appears on paper to be a standard Head of Process Chemistry role might offer much more for the right candidate. A job description will list the responsibilities but not necessarily the rapid advancement potential that exists. Beyond that, titles and responsibilities can often be adjusted to attract the right candidate. This is especially true with smaller companies whose hierarchy might not be fully developed yet. Invest the time in a telephone interview or a face-to-face meeting even if the position does not appear to be a perfect fit. You may find the role to be more attractive than it appeared at first glance. If not, you have still given yourself exposure to a senior level hiring manager in your area and had the chance to make a positive impression. Stay engaged and courteous throughout the interview, even if it becomes apparent that the position is not right for you. If you do decide that you are not interested after the meeting, let the manager know with a follow-up phone call or email. Recommend a colleague that may be a more appropriate fit and tell them about your own future interests. This will increase the likelihood that they will think of you for other opportunities that arise in their group. They may even recommend you for a position that they are aware of outside of their department or even outside of their company.

### ***V Evaluating your progress***

Taking the time to evaluate your progress along the way is absolutely

crucial. You will already be doing this formally at least once per year when you update your resumé. This can also be done as a part of an annual review with your boss. As you review the steps that we have outlined, you will notice a common theme, the need for self-evaluation. In fact, continuously assessing your progress is imperative and is something you should be conscientious about throughout your working life. Did you reach this year's goal? Have you attempted to step outside of your immediate comfort zone at work to be exposed to something new? Did you gain the experience you desired during a particular project? Setting a goal is the first step but is pointless unless you are going to judge your progress against each goal.

Remember that job searching is a career-long process that will evolve over time. Your goals will likely change over the course of several years, and that is okay. You should be constantly planning your development path, creating opportunities to gain new experience and evaluating your progress to make the necessary adjustments. You are certain to have some missteps along the way, but do not allow these small obstacles to cloud the larger view. One or two short stints or lateral moves on your resumé are okay, as long as the bigger picture demonstrates stability and growth. It shows that you are willing to take on challenges and are not afraid to make tough decisions. If you take a proactive approach to developing your career, you will remove chance from the equation and correct any poor choices more efficiently. Your career will likely last 30 or more years. You will not achieve all of your goals this year or next, but you can position yourself for improved upward mobility and significantly greater earning potential during the next phase of your career. In order to do this, you must focus on the experience you are gaining now rather than just the money you are earning. No matter what your long term goals involve, following this simple process will allow you not only to achieve them, but to achieve them more

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# Historical Notes

## **Frank Henry Westheimer** 1912-2007

We are saddened to report that Frank Westheimer, one of the most innovative chemists of his generation, died. He was one of the stars of the Harvard Chemistry Department during the last half of the twentieth century, with major contributions to physical organic chemistry in the mechanisms of chemical and enzymatic reactions, molecular mechanics, photoaffinity labeling, and use of pseudorotation in phosphate ester chemistry.

Frank was born and received his early education in Baltimore, MD. He graduated from Dartmouth College *summa cum laude* in 1932 and took his doctorate training at Harvard under J. B. Conant. When Conant moved into the president's chair Frank completed his degree with E. P. Kohler, receiving the degree in 1935. He was a National Research Fellow at Columbia that year, then joined the University of Chicago faculty in 1936. During World War II, he was a supervisor leading a research program at the National Explosives Research Laboratory. After the war he returned to Chicago, and in 1953 he joined the Harvard faculty.

By 1950 Frank was making contributions not only to physical organic mechanistic chemistry, but he had already set his brilliant mind on the black box of enzymatic reaction mech-

anisms His successes were important in opening up that field to logical analysis.

He won many honors, among them the U.S. National Medal of Honor, the U.S. National Academy of Science Award in Chemical Sciences, the Robert Welch Foundation Award in Chemistry and the ACS Priestley Medal. Northeastern Section Awards included the James Flack Norris Award in Physical Organic Chemistry in 1970 and the Theodore William Richards Medal in 1976 In 2002 Harvard University established in his honor the Frank H. Westheimer Medal for Scientific Excellence.

Frank was a science adviser to President Lyndon Johnson and chaired the National Academy of Sciences Committee on Federal Support of Chemical Sciences which had far-ranging influence on chemistry in the last four decades of the century.

I can do no better in describing Frank Westheimer to you than to quote part of the tribute written by E. J. Corey for the Harvard community:

*" Westheimer's command of national issues was extraordinary. He reasoned against war, first in Vietnam and then in Iraq. For four decades, he emphasized the need for strong measures against pollution and global warming and in favor of energy conservation, alternative energy development, and greater support of fundamental research. He encouraged fellow chemists to apply their skills to other disciplines, especially biology and medicine. He pleaded with universities to improve the education of nonscientists by finding new ways to teach science. He viewed the problem as complex, but soluble, if the verticality of scientific subjects with their numerous course prerequisites could be dealt with by a new kind of teaching for non-scientists."*

Westheimer was admired and respected as a person by his students and colleagues worldwide. Most would agree on the salient qualities that defined the man throughout his life: a powerful intellect, great personal integrity and courage, extraordinary dedication to scientific discovery, and

a deep concern for country and humankind. He was a gregarious and social person with a happy family life. His wife of 64 years, Jeanne, passed away in 2001. He is survived by their daughters, Ruth Susan Westheimer of Worcester, MA, and Ellen Westheimer of Carlisle, MA.

MSS

## **David W. Yesair** 1933-2007

We are saddened to inform you that David W. Yesair, Ph.D., died on Friday, April 20, 2007. David has been an active member of this Section, and his loss will be felt keenly.

David lived his whole life in Byfield, Mass. He went to Governor Dummer Academy, took his B.S. degree in chemistry and mathematics at the University of Massachusetts at Amherst in 1954, and his Ph.D. degree in biochemistry at Cornell under Nobel laureate James B. Sumner.

His career began at Lederle Laboratories, but a National Science Foundation post-doctoral fellowship sent him off to research in England. In 1962 he joined Arthur D. Little, Inc. where he stayed for 22 years, rising to vice president. He left ADL in 1984 to form his own company, BioMolecular Products, Inc. in order to develop a drug delivery system based on his lipid research. Among his honors are fellowships in Sigma Xi, NIH and NSF. He was Chairman of the Gordon Research Conference on Drug Metabolism in 1983.

He is survived by his wife of 54 years, Ruth, three children and their families including seven grandchildren and four great grandchildren.

JN and MSS

## **Daniel J. Burgess**

We are sorry to report the passing of Dr. Daniel J. Burgess, a frequent participant in activities of the Northeastern Section. Daniel, a retired dentist, came to many NESACS monthly programs, and made many friends among our members. He was the brother of Mary Burgess. ◇

## Getting Ahead

*Continued from page 28*

quickly. Your resumé will become increasingly marketable and doors will start to open up for you both internally and externally. Before you know it, you will have built a resumé that your colleagues will envy and people will be trying to model their career paths to mirror your own. Who knows, a recruiter may even be calling you for an exciting Vice President Research position some day soon. ◇

# Rowland Institute for Science

by Michael Burns



The Rowland Institute for Science was founded in 1981 by Edwin Land, then President and Director of Research of Polaroid Corporation, for the advancement of all disciplines of science. It is located in Cambridge, Massachusetts near the Longfellow Bridge over the Charles River, a few miles downstream from the main Harvard campus.

The concept of a relatively small yet highly productive interdisciplinary institution—whose culture is focused on the success of the group as well as the individual—was originally conceived by Dr. Land as a powerful instrument for scientific advancement. In addition, he understood the critical importance of stable and long-term support of research projects for enabling the careful and deep efforts required to explore the implications of an idea.

During its first 20 years as an independent research organization, Rowland successfully carried out a wide variety of science research in chemistry, physics and biology. There were some notable results during that time, among which were the first observation of single-stepping by a kinesin molecule along a microtubule, pioneering the use of laser tweezers by Steven Block, automated single molecule detection and characterization by Amit Meller, and the amazing feat of slowing the speed of light to a few meters per second by Lene Hau.

In 2002 the Institute merged with Harvard University, becoming the Rowland Institute at Harvard. Under its director, Prof. Frans Spaepen, the Institute continues Dr. Land's vision of the ideal laboratory: a broad view of science and an appreciation for the rich potential for discovery in the contact between the traditional disciplines; a dedica-

tion to small-scale laboratory science; an emphasis on technical support of the highest level for experimentation; and a desire to let the best minds be creative without concern for the vagaries of the funding world.

Central to the Institute is the Junior Fellows program. Young scientists have the opportunity to perform independent experimental work for five years, with full institutional support, including funding and access to the Institute's outstanding technical and scientific resources. Every year we solicit submission by new Ph.D. scientists of a CV and a single-page research proposal for an experimental project in any of the natural sciences or engineering, with special attention paid to interdisciplinary opportunities and the development of new experimental methods. At any given time we have eight to ten such Fellows and their projects active at the Institute, providing a good part of the exciting scientific environment originally envisioned for the Institute.

More information about the Institute, as well as some history of Edwin Land, can be found at [www.rowland.harvard.edu](http://www.rowland.harvard.edu). You can follow its current research activities as Institute members pursue its motto: imaginative experimental science. ♦

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# From the Editor

I am writing this at midnight on a Saturday as I endeavor to finish this issue before I leave for a week of vacation. I want to thank all of those who contributed content or helped me put this issue together and hope those of you who read this issue of *The Nucleus* consider it to be a memorable issue.

Mort Hoffman has done his usual outstanding job writing articles and taking photographs. Mort's photo graces the cover and he also had a hand in several articles. Bob Lichter as chair of the local organizing committee for the National Meeting also contributed significantly with several articles bearing his by-line. In fact the local leadership of the Section all made contributions as the contributed articles demonstrate. However, the contributors to this issue are not just the leadership of the section such as Mort, Bob, Myke Simon, Mukund Chorghade, Ruth Tanner, Raj Rajur, Michael Strem and Steve Lantos. We also have some new voices in this issue.

Last September on a plane headed to San Francisco for the ACS Meeting, I struck up a conversation with M.I.T. post-doctoral researcher, Anne McNeil. I learned about her search for an academic job. I thought this would make a great article for *The Nucleus* once she had completed the process. She expressed an interest in writing such an article. When I followed up many months later, she had accepted a position at the University of Michigan and she was still interested. The result is an article, which should be of value to any young researcher seeking their first academic job.

Similarly, we also have an article by a high school senior, Amrita Karambelkar, on her research experience at Tufts New England Medical Center. Mukund Chorghade encouraged Amrita to write for *The Nucleus*.

Larry Murphy of Cabot Corporation responded with an update on the activities of the recently formed

*Continued on page 31*

# Harvard's Collection of Historical Scientific Instruments

By Myron S. Simon

For chemists the introduction of new instrumentation is taken for granted as a continuing opportunity to make our work easier, faster, and more productive. But development of new or improved instruments is also an important aspect of the history of science, and a short trip to Cambridge will provide us with an opportunity to see a major example, The Collection of Historical Scientific Instruments at Harvard.

Harvard's purchase of scientific instruments began in 1764 after a fire in Harvard Hall destroyed the College's philosophical apparatus. At that time Benjamin Franklin was called upon to purchase the most advanced instruments he could obtain in London. You can see the very instruments he

supplied, in the Collection.

The Collection includes some 20,000 instruments and other artifacts, dating from the 15th Century (needless to say, not all of which are on display), and covers most scientific disciplines. Original documents of purchase and use are preserved in the Harvard University Archives. The public display began in 1947 with an exhibition in the entry hall to the Mallinckrodt Chemistry Laboratory. In 1989 the Collection became part of the Department of the History of Science. The present location is in Science Center 136, One Oxford Street, Cambridge.

Summer Hours began July 28 and are Monday through Thursday, 11:00 AM to 4:00 PM. There is no admission charge; it is open to the public.

Inquiries may be made at 617-495-2779. We hope that you have a chance, during your visit here, to see this wonderful collection. The MBTA Red Line to Harvard Square will take you there.

For those interested, the 26th Symposium of the Scientific Instrument Commission will take place in Cambridge, September 6 to 11, 2007. Harvard and MIT are the hosts. The themes are colonial science and its instruments, provincial versus metropolitan instrument makers, and instrumentation taken on voyages of exploration or on scientific expeditions.

Much of the information in this note has been taken from Harvard University publications. ◇

## January 2007 Meeting

*The Speaker at the NESACS January Meeting, Dr. Yvonne Connolly Martin (Abbot Laboratories). The January meeting was held jointly with the Boston Area Group for Informatics and Modelling (BAGIM).*



## February 2007 Meeting

*NESACS Chair Mukund Chorghade with February Speaker, Jeannette Elizabeth Brown.*



*Jeannette Brown presenting her lecture on "African-American Women Chemists Who Made a Difference."*

*All photos by James Phillips.*

## From the Editor

*Continued from page 30*

ALMA (Analytical Lab Managers Association) Chapter. Thanks also to Lynne Garone of E Ink and co-chair of ALMA for helping this happen.

Amy Cannon responded to a request made to John Warner with an update on the Green Chemistry initiatives at UMASS Lowell.

Dan Eustace, a former colleague at Polaroid, is a rising star in the Section as the story about his role in journal donations to Argentina and his recent selection as a finalist for two ChemLuminary awards demonstrate.

Megan Driscoll of PharmaLogics Recruiting and her team have written two extensive articles on employment, which have been accepted for publication in *The Nucleus*. The first was written for employers and was published in the December 2006 issue. Now we have the complementary article written for employees on strategies for "getting ahead."

I have now edited *The Nucleus* for 30 months and this will be the twenty-fourth issue I have edited. There are times I feel this is a solitary endeavor but the support and contributions I have received to produce this issue prove otherwise.

In addition to the contributors I have already listed, I have also benefited from excellent copyediting and proof reading by Vivian Walworth, Don Rickter and Joe Billo. My final thanks go to Harvey Steiner of Art Related Technology who, ultimately, helps me piece *The Nucleus* together in a form suitable for the printer. Now I must move on to the next issue! The editorial process starts anew. I have nine straight months and nine issues to put together. I appreciate all your help in the past and will continue to need it in the future.

MPF ◇

## New in Boston

*Continued from page 4*

waterfront. Recently opened are the Institute of Contemporary Art and the Moakley U.S. Courthouse on Fan Pier, which feature exhibits and programs. If you have kids in tow, go to the Boston Children's Museum on Congress Street. Boats to Provincetown, water taxis to places along the waterfront, including Logan Airport, and ships for romantic dinner cruises leave from the piers along Northern Avenue.

In addition to the ACS shuttle buses from the hotels, the Seaport District is accessible by foot on bridges across the Fort Point Channel, by city buses Nos. 4 and 7, and by the new subway Silver Line from South Station and Logan Airport.

### The "T"

If you have any subway tokens left over from previous visits to Boston, make them part of your family's inheritance or auction them on eBay; as of this past January they were rendered obsolete. Replacing the tokens, the old turnstiles, and the change booths has been an automated system not unlike that in Washington, DC. Gone, too, is the \$1.25 subway fare, up successively in recent years from 85¢ and \$1.00. Here's how it works.

The fare for a single subway ride is \$2.00; a bus ride is \$1.50, including transfers. You would purchase a "CharlieTicket" (Charlie as in the Kingston Trio's 1950's song, *Charlie on the MTA*) at one of the automated kiosks within the stations for the number of rides you want to take; the machines accept cash, debit, and credit cards. CharlieTickets, as well as cash (exact fare only), can be used on the buses. If you are going to use the "T" a great deal, it pays to obtain a "CharlieCard" from the "T" employees who roam the stations, from the MBTA website <<http://www.mta.com>>, or at convenience store chains such as Tedeschi's and 7-11, and load it up at the cash/credit card machines or online. The single-ride fare for CharlieCard users is \$1.75 on the subway and \$1.25 on the bus. The disadvan-

tage is that you cannot get your money out of the CharlieCard when you go home, so it is wise to be judicious when loading it up (or give us the ones you don't want!). For those like the authors of this article who are long in the tooth, or those with disabilities, special reduced-fare (60¢ a ride) CharlieCards can be obtained from the "T".

If you want to take the "T" from the Back Bay hotels, catch the Green Line "B" cars on Boylston Street at Dartmouth Street (Copley station) or Massachusetts Avenue (Hynes station), or the "E" line on Huntington Avenue (Prudential station). Take the Green Line trains inbound (*i.e.*, toward Park Street, Government Center, North Station, or Lechmere) to Park Street, go downstairs to the Red Line and take an outbound train toward Ashmont/Brain-tree. Travel two stops to South Station. From there you can walk or take the Silver Line (for an additional fare) to the World Trade Center stop. Alternatively, from Back Bay Station on Dartmouth Street you can access the Orange Line inbound (toward Oak Grove) to Downtown Crossing, where you can transfer to the Red Line as described above for one stop to South Station.

There are two "T" options from Logan Airport: the Silver Line from any of the terminals to South Station via the World Trade Center, or the free MassPort shuttle bus from the terminals to the Blue Line (Airport station) and thence inbound to Government Center, where transfer can be made to the Green Line. There is also boat service from Logan to Downtown (Long Wharf) as well as to Hull and Quincy out in the 'burbs.

### The Red Sox

Since the last ACS meeting in Boston, the Red Sox became the World Champions of Baseball in 2004 by winning four straight from the Evil Empire (*aka* N.Y. Yankees) after having been down 3-0 in the American League Championship Series, and another four straight from the St. Louis Cardinals in the World Series. Those of you who would like to experience a game at Fenway Park should know that

## Exchange w/Germany

*Continued from page 7*

was formed, comprising Michael Strem as Chair; Ruth Tanner (UMass Lowell), NESACS Education Committee Chair; Morton Hoffman (Boston University), NESACS Chair-Elect; Amy Tapper (Boston University), YCC Chair; Tim Frigo (Advanced Magnetics, Inc.), NESACS Chair; and Doris Lewis (Suffolk University), NESACS Immediate Past-chair. Because NESACS would serve as the host of the 2001 Exchange, its Board appropriated sufficient funds to provide lodging, local transportation and meals, and excursions for the JCF visitors.

### 2001 Exchange (April 27-May 4)

Nine German chemistry graduate students from universities in Freiburg, Hanover, Aachen, Heidelberg, Göttingen, Paderborn, Frankfurt, and Kaiserslautern, who had been selected by GDCh, were accompanied to Boston by Begitt and three faculty members: Carsten Bolm, Rheinisch-Westfälische Technische Hochschule Aachen; Christiane Reiners, Universität Köln; Terence Mitchell, Universität Dortmund.

The formal program began on Saturday, April 28, with the Third Annual Northeast Student Chemistry Research Conference, which brought together

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the Sox will play a day/night (separate admissions) double header at 1 and 7 p.m. against the Los Angeles Angels on Friday, August 17, an evening game (7 p.m.) on Saturday, and a day game (2 p.m.) on Sunday. Then they're off to Tampa Bay and Chicago for the rest of the ACS meeting.

If you would like to tour Fenway Park when the team is away and see where the Babe pitched, touch the Green Monster, and sop up its 95-year history, check out <<http://boston.redsox.mlb.com/bos/ballpark/tour.jsp>>.

Welcome to "The Hub." Go Sox!

*Morton Hoffman is an Emeritus Professor of Chemistry at Boston University; Robert Lichter is Principal and Co-founder of Merrimack Consultants, LLC.◇*

## Exchange w/Germany

*Continued from page 32*

undergraduates, graduate students, and postdoctoral fellows from the region to celebrate their accomplishments in research and to provide a forum for the sharing of ideas and scientific understanding. More than 60 posters were displayed to the 100 attendees; oral presentations were given by two of the German students and four Boston-area graduate students. Attila Pavlath, ACS President, who was present, gave part of his welcoming remarks in German; the keynote address was given by Robert Langer (M.I.T.).

Among the scheduled events of the week were dinners; a farewell banquet at which Dudley Herschbach (Harvard) spoke; a concert of the Boston Symphony Orchestra at Symphony Hall; visits to laboratories at Harvard and M.I.T. and the facilities of Waters Associates; attendance at the Kistiakowski Lecture at Harvard given by Ahmed Zewail; and, of course, a Red Sox game at Fenway Park. At the end of the week, during a half-day symposium on chemical education in the U.S. and Germany, the three German faculty members were joined as speakers by Sylvia Ware (ACS Education and International Activities Division), Glenn Crosby (Washington State University), and Robert Lichter (The Camille and Henry Dreyfus Foundation, Inc.).

### 2002 Exchange (March 9-16)

One undergraduate from St. Anselm College, and eleven graduate students from Boston College, Boston University, Brandeis, M.I.T., Dartmouth, Tufts, and UMass Boston, who had been selected by NESACS on the basis of their applications and letters of recommendation from their respective research supervisors, arrived in Cologne on Sunday, March 10 after an overnight flight from Boston, accompanied by Tapper, Strem, Hoffman, and Tanner; they dispelled jet lag by touring the city during the day and visiting the University in the evening, where they learned about the *Chemiedozententagung*, which was under way.

A half-day GDCh-NESACS-cosponsored symposium on "International Careers for Young Chemists: Careers in Germany and in the United States" featured talks by Georg Hohlneicher (Universität Köln), Thomas Schreckenbach (Merck Darmstadt), Christian Schäfer (German Academic Exchange Service, DAAD), Strem, and Hoffman. Other days were spent touring the research facilities of Bayer (Leverkusen) and the Jülich Research Center.

Toward the end of the week the group moved on to Aachen for the two-day GDCh-JCF spring symposium (*Euregionale*) where the NESACS delegation joined young chemists from Germany and other European countries in the presentation of research talks and posters; Monica Rixman (M.I.T.), one of the NESACS graduate students, received an award for an outstanding oral presentation.

### 2003 Exchange (February 22-March 1)

After the 2002 Exchange, the organizers on both sides of the Atlantic agreed to schedule the visits on a 2-NESACS:1-GDCh basis, with the NESACS group traveling to Germany in 2003. Ten graduate and two undergraduate students from M.I.T., Boston College, Boston University, Dartmouth, Tufts, U Mass Boston, and UMass Lowell, accompanied by Patrick Gordon (NESACS Alternate Councilor), Tapper (Genzyme), Strem, Hoffman, and Tanner, arrived in Munich on Sunday, February 23. Following the same pattern upon its arrival as had the previous Exchange, the group toured the city and visited Ludwig-Maximilians University and the famous Hofbräuhaus. A visit to the research laboratories of the Technical University Munich (TUM), including the 900 MHz NMR, was followed by a symposium on international careers, which featured presentations, in German and English by John Neumeyer (NESACS Chair), who had been born in Munich; Elsa Reichmanis (ACS President), Stefan Buchholz (Degussa), Hans-Achim Wagenknecht (TUM), Schäfer, and Tapper. A fascinating tour

of historic chemical artifacts, including replicas of the laboratories of Lavoisier and Liebig, at the Deutsches Museum, and a tour of the research and production facilities of Wacker Chemie in Burghausen concluded the visit to Munich.

A short flight brought the group to the Technical University Dresden (TUD), where the *Euregionale* with representatives from many countries, was held. NESACS students won nominations in three of the four award categories for oral and poster presentations, but, alas, did not bring home the gold.

### 2004 Exchange (April 18-25)

The German delegation of 15 graduate students, including the former and present chairs of JCF, from universities in Stuttgart, Frankfurt, Leipzig, Hanover, Hamburg, and Konstanz, among others, arrived with Begitt, settled into their lodgings, got 360° views of Boston from the top of the Prudential Building, and had a traditional New England dinner at Durgin Park. Monday, April 19, was Patriot's Day in Massachusetts (and Maine); the JCF group and their YCC hosts joined the crowd at Fenway Park for a Red Sox-Yankees battle, and then watched the Boston Marathon runners come through Kenmore Square. Subsequent days were spent touring the chemistry research laboratories at M.I.T. and Harvard, traveling to Groton, CT, to visit the R&D facility of Pfizer, and dining at Christie's-on-the-Bay in Newport, RI. A day was spent at the Museum of Fine Arts, where the analytical chemical problems associated with the authentication and preservation of art and artifacts were discussed. That evening the group went to Symphony Hall for a performance of the Boston Symphony Orchestra.

On Friday of that week the German students attended the YCC-organized Northeast Student Chemistry Career Fair, where sessions on resumé writing, interviewing, and searching for postdoctoral and industrial jobs were held and representatives from regional companies were available for

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## Exchange w/Germany

Continued from page 33

discussion. The Sixth Annual Northeast Student Chemistry Research Conference on Saturday, which attracted 130 participants, featured welcoming remarks by Charles Casey (ACS President) and a keynote address by Stephen Lippard (M.I.T.). One of the German students won a cash award for the best oral presentation. A farewell banquet, including Boston Cream Pie, concluded the Exchange.

### 2005 Exchange (April 3-10)



Sarah Chobot (Boston University): awarded Best Oral Presentation prize at 2005 Frühjahrsymposium Jungchemikerforum (JCF)

Photo by Morton Z. Hoffman

The NESACS delegation to Germany consisted of one undergraduate each from Boston College and Boston University and 10 graduate students from M.I.T., Harvard, Dartmouth, Tufts, Boston University, and the University of New Hampshire; the group was accompanied by Lauren Wolf, YCC Immediate Past-chair, Strem, Tanner, and Hoffman. This Exchange had several new features: the *Euregionale* was replaced by a larger and more geographically extended *Frühjahrsymposium*, and the entire week was spent in a single location, Humboldt University in Berlin, eliminating the need for expensive and time-consuming travel within Germany. In addition to touring Berlin and Potsdam, the NESACS group visited the research and development laboratories of Schering and the chemistry research facilities at the Technical University Berlin, the University of Potsdam, and the Max Planck Institute of Colloids and Interfaces.

At the *Frühjahrsymposium*, which attracted more than 200 partici-

pants, many from eastern Europe, talks were given by four NESACS students, including Sarah Chobot, the undergraduate from Boston U, who won the € 250 cash prize and a flight ticket to attend a scientific conference of her choice anywhere in the world during the following year for the best oral presentation. At the farewell dinner, Strem was awarded the Golden GDCh Pin, which recognizes outstanding service to chemistry and the chemical society, for his work in promoting cooperation between ACS and GDCh, including the JCF-YCC Exchange.

### 2006 Exchange (March 12-19)

The *Frühjahrsymposium* at the University of Konstanz, which attracted almost 200 participants from 15 countries, was attended by one undergraduate each from Bridgewater State College and Stonehill College, and two from Harvard; eight graduate students were from Tufts, Boston College, Boston University, Dartmouth, Harvard, University of New Hampshire, and UMass Dartmouth. Accompanying the group to Konstanz were Ivan Korendovych (YCC Chair), Tanner, Strem, and Hoffman. Dan Killelea (Tufts) received a third place cash award for his oral presentation, and Vikki Tsefrikas (Boston College) and Leland Johnson (Boston University) received certificates citing the exceptional quality of their research posters.

During the rest of the week, the NESACS delegation toured the Chemistry Department of the University; visited the Max Planck Institute Materials Research Center in Freiburg; spent a day at Altana Pharma; took a guided tour of the old medieval section of Konstanz; and relaxed on a boat ride on Lake Constance to Meerburg to taste the local wines.

### 2007 Exchange (August 18-25)

The German Delegation will attend the ACS meeting, display research posters in the relevant technical divisions and at Sci-Mix (Monday, 8-10 p.m.), and participate in a reception in their honor (Sunday 5:30-7 p.m.). Four of the students (and Begitt) will present oral contributions in a symposium in the Division of

Chemical Education (CHED), Connections to Germany: Research and Education Opportunities, on Sunday afternoon, 1:30-5 p.m., in Plaza A of the Seaport Hotel.

In addition, thanks to an Innovative Projects Grant from the ACS Divisional Activities Committee to CHED, Dr. Marianne Sgoff, a high school teacher of chemistry in Germany, will come to Boston for the ACS meeting. She will speak in the CHED High School Program (*The High School-College Interface*) on Sunday morning at 9:10 a.m. on "Challenges of Teaching High School Chemistry in Germany" in Plaza B of the Seaport Hotel.

NESACS, as the host for this visit, is providing lodging for its guests, and has organized excursions, laboratory visits, and other events of a scientific and cultural nature. The costs for lodging and registration at the meeting have been partially defrayed by the DAC grant and a grant to NESACS from the ACS Local Section Activities Committee.

Following is a list of the German graduate students, their institutions, the titles of their research posters, and the divisions and times of their presentations. Check the ACS website <www.acs.org> or the meeting program in *C&EN* for the locations of these sessions.

### German Delegation

Dominik Margraf  
Johann Wolfgang Goethe-Universität,  
Frankfurt am Main  
"Pulsed electron-electron double resonance: Beyond measuring distances"  
PHYS, Wednesday, 7-9 p.m.

Cathrin Corten  
Technische Universität Dresden  
"Multi-sensitive hydrogel thin films: From synthesis to application"  
PMSE/POLY, Tuesday, 7-9 p.m.

Eva-Maria Jahn  
Ludwig-Maximilians Universität  
München  
"Synthetic approach to natural tRNA modifications"  
ORGN, Sunday, 8-10 p.m.

Helke Döring  
Technische Universität Chemnitz  
"Kinetic measurements using cataly-

## Exchange w/Germany

*Continued from page 34*

coatings”

I&EC, Tuesday, 8-10 p.m.

Naho Fujimoto

Forschungszentrum Borstel

“Glycosylceramides: Synthesis and biophysical properties”

ORGN, Sunday, 8-10 p.m.

Dominik Albrecht

Technische Universität München

“Enantioselective intramolecular [2+2]-photocycloaddition reactions of tetramic acid esters and their structural homologues mediated by a chiral lactam host”

ORGN, Tuesday, 8-10 p.m.

Tom Grossmann

Humboldt Universität, Berlin

“DNA-catalyzed organic transfer reaction for sequence-specific DNA-detection”

ORGN, Sunday, 8-10 p.m.

Philipp Wacker

Universität Potsdam

“Conformational analysis and ring current effects of porphyrins studied by molecular modeling”

ORGN, Wednesday, 8-10 p.m.

Jens Breffke

Humboldt Universität, Berlin

“No dual fluorescence in trans-4-dimethylamino-4'-cyanostilbene (DSC)”

PHYS, Wednesday, 7-9 p.m.

Jörg-Joachim Nitz

Max Planck Institut für Kohlenforschung, Mülheim an der Ruhr

“Spatially controlled functionalization of ordered mesoporous carbons”

COLL, Monday, 6-8 p.m.

Igor Schapiro

Universität Duisburg-Essen

“Ab initio molecular dynamics of visual pigment chromophore models”

COMP, Tuesday, 6-8 p.m.

Hanns Martin Kaiser

Universität Rostock

“New synthetic protocols for the preparation of unsymmetrical bisindoles”

ORGN, Wednesday, 8-10 p.m.

Peter Wich

Universität Würzburg

“Stereoselective binding of peptides by artificial receptors in water: New insights into the molecular recognition of biologically relevant substrates”

ORGN, Sunday, 8-10 p.m.

Franziska Luschnetz

Universität Potsdam

“New perspectives on fluorescence probes for protein single molecule spectroscopy”

PHYS, Wednesday, 7-9 p.m.

Laila Dafik (YCC Chair, Tufts U) met many of the members of the German delegation at the *Frühjahrssymposium* in Chemnitz, March 22-24, where she presented a poster on the activities of the NESACS-YCC.

### **Symposium (Sunday, 1:30-5 p.m.), Plaza A, Seaport Hotel**

The symposium, with CHED as the sponsoring technical division, has been organized by Hoffman and is cosponsored by the German Chemical Society, ACS International Activities Committee, CHED International Activities Committee, ACS Northeastern Section, Graduate Student Symposium Planning Committee, Society Committee on Education, Women's Chemist Committee, Younger Chemists Committee, and the ACS President. The schedule is as follows:

1:30 – Welcoming remarks

1:35 – Eva-Maria Jahn, Biological chemistry research at Ludwig-Maximilians University

1:55 – Tom Grossmann, DNA as catalyst in organic synthesis: An approach for sequence-specific DNA detection

2:15 – Cathrin Corten, Characterization of smart materials synthesized via controlled radical polymerization

2:35 – Intermission

2:45 – Christian Schäfer (DAAD), Funding academic exchange and promoting research in Germany

3:05 – Georg Bechtold (German Research Foundation), Basic research in Germany

3:25 – Claudia Jopp (Boston Consulting Group), The Boston Consulting

Group Germany

3:45 – Intermission

3:55 – Kurt Begitt and Jens Breffke, The German Chemical Society and chemical education and research in Germany

4:20 – Laila Dafik, Younger Chemists Committee of the Northeastern Section

4:40 – Morton Hoffman, Study abroad opportunities in Germany for American science and engineering undergraduates

### **Reception (Sunday, 5:30-7 p.m.), Lighthouse Ballroom 2, Seaport Hotel**

At the reception, the research posters of the German students and posters from JCF, YCC, and other sponsors will be on display, providing an opportunity for attendees to speak to the presenters in the informal setting. In addition, tables for the display of materials by the sponsors of the reception will also be available. Some short welcoming remarks will be made, and it is anticipated that some *Salutes to Excellence* awards will be presented.

The sponsors of the reception are NESACS, CHED, Graduate Student Symposium Planning Committee, GDCh, DAAD, the Boston Consulting Group, and the German Research Foundation.

### **Looking Ahead**

Plans are being developed for the next Exchange in 2008, when a delegation from NESACS will travel to Germany for the *Frühjahrssymposium* in Rostock, March 27-29. We hope that the Exchange will continue with another visit by undergraduates and graduate students from NESACS to Germany in 2009. We look forward to the opportunity to welcome JCF to Boston in August 2010 on the occasion of the next ACS National Meeting in the Hub.

*This article was compiled by Morton Hoffman, Ruth Tanner, and Michael Strem. Information obtained from articles in The NUCLEUS by Suzann Hertzler, Lauren Wolf, and Jarred Blank is gratefully acknowledged.* ◇



# BUSINESS DIRECTORY

## Research Experience

*Continued from page 20*

I learned several new protocols through my work, which will help me in the future, particularly in college lab work. In addition, I had the opportunity to work with sophisticated instruments, which I had never seen before, including a massive centrifuge and spectrophotometer. I had the chance to work under a hood, culturing and splitting cell plates. My lab experience enabled me to learn by osmosis through my surroundings.

The work I did at the MORI lab was part of a large effort by many researchers to develop a new method to combat cancer. My two supervisors at the lab, who guided me in my work, told me that the lab hoped to create a lentivirus vector carrying anti-cancer genes that could provide a new way of fighting the disease. My tasks included incorporating the genes into *E. coli* DNA, or plasmids, and retrieving the plasmids for use in a lentiviral vector. In the process, the plasmids were replicated in the bacteria, grown in culture for days, and purified. I performed several tests, such as gel electrophoresis, to confirm that the correct genes were incorporated in the plasmids. Researchers hope that, in the future, the lentivirus, with the anti-cancer genes, could be injected into a patient with cancer and cure the disease.

My volunteer work in the lab taught me a few important lessons. First, I learned that scientific research of any kind is a slow process, requiring careful observation and patience. I sometimes had to allow hours to pass for culture to grow. Also, I quickly realized that obtaining perfect results was nearly impossible; I dealt with failure in some of my tests. Through the process of failure and correction, I learned how to troubleshoot. I understood that science is not a string of successes, but often a hit-or-miss process, and I would sometimes cross my fingers to see whether a certain experiment had worked. From a scientific standpoint, I learned that chemistry was especially important to the understanding of basic biology. Thus, my

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research work was valuable not only in enhancing my knowledge of biology and cancer, but also in teaching me basic procedures of lab work and the scientific process.

I will be attending MIT this fall and hope to continue work in all fields of science. My work at the lab only made me more enthusiastic about research, and I hope to do internships in college. I am interested in the biomedical and biochemical fields at MIT, and I am optimistic about my academic dreams for the future. ◇

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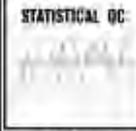
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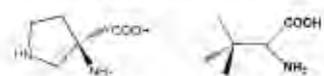
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# Nominations

## 2008 Richards Medal Award

Nominations are invited for the 2008 Theodore William Richards Medal Award for conspicuous achievement in any area of chemistry. The Northeastern Section of the American Chemical Society awards the Richards Medal, honoring America's first chemistry Nobel laureate and initially presented in 1932, every two years.

The medal was last presented in 2006 to Professor Richard Schrock of the Massachusetts Institute of Technology. The next presentation will be made in March of 2008.

A nomination package consists of a brief curriculum vitae, a list of up to twenty citations for key publications, and a clear and concise nomination letter outlining the nominee's "conspicuous achievements in chemistry."

These materials **must** be submitted electronically in a single Adobe® PDF format file to:

**Professor Gary R. Weisman**  
Department of Chemistry  
University of New Hampshire  
Durham, New Hampshire  
03824-3598  
gary.weisman@unh.edu

Nominations must be received by **November 1, 2007**. Nominators are responsible to confirm receipt of their e-mail nomination package.

For additional information contact:  
Gary R. Weisman,  
phone: 603-862-2304;  
fax: 603-862-4278;  
email: gary.weisman@unh.edu ◇

## Calendar

### Notices for The Nucleus Calendar of Seminars should be sent to:

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