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THE NUCLEUS

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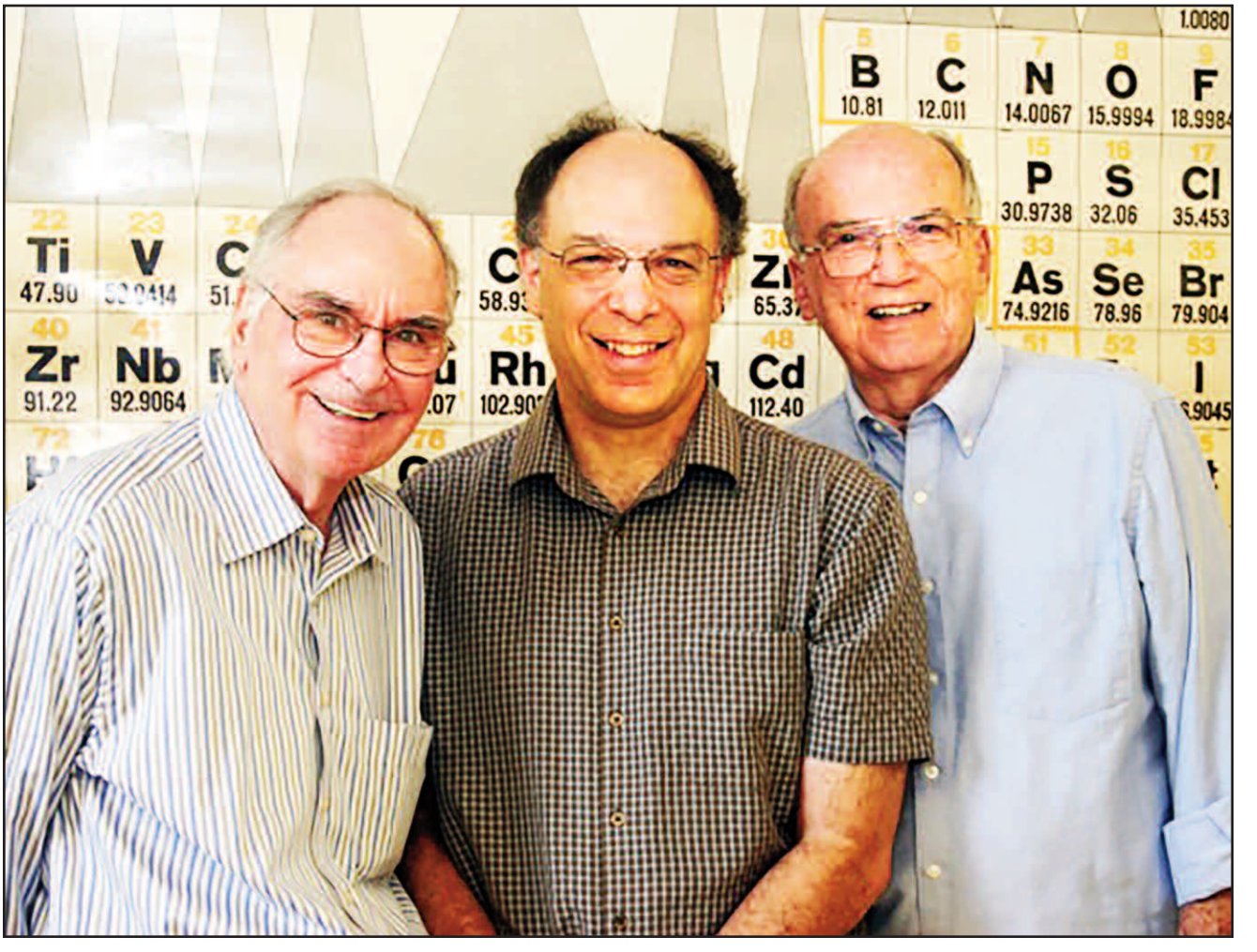

Monthly Meeting

James Flack Norris Award and Arno Heyn Memorial Book Prize at Holiday Inn Boston-Brookline

Report from Boston: ACS National Meeting

By Morton Z. Hoffman

Henry Hill

By Arthur S. Obermayer

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Cover: *Pictured are the recipients of the James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry (L-R) James Spencer, Franklin & Marshall College; Richard S. Moog, Franklin & Marshall College; and Frank J. Creegan, Washington College. (Photo by Marcy Dubroff)*

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THE NUCLEUS

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Report from the 250th American Chemical Society National Meeting

Morton Z. Hoffman [hoffman@bu.edu]

Almost 14,000 attendees swarmed over the Boston Convention and Exposition Center (BCEC), the adjacent Seaport District hotels, and the other hotels in Back Bay and downtown for the 250th National Meeting in mid-August. Among the participants at the meeting were many members of NESACS who gave technical presentations, served on committees and Council, and were involved in social and programmatic activities. Here is a brief summary of some of the events that took place.

L to R- Michael Singer, NESACS Secretary, Jack Driscoll, NESACS Public Relations Chair
(Photo by M.Z. Hoffman)

Nucleus Editor and long time Polaroid employee Michael Filosa with the plaque honoring Edwin Land and his achievements
(Photo by Jennifer Herchen)

National Historic Chemical Landmark

A ceremony and reception honoring the establishment of a chemical landmark in recognition of Edwin Land and instant photography was held on Thursday, August 13, at the M.I.T. Museum with the installation of a commemorative plaque at the former Polaroid Corporation laboratory at 28 Osborn Street, Cambridge. Under the aegis of a planning committee composed of members of NESACS, Polaroid Retirees Association, M.I.T., and Cambridge civic leaders, the dedication ceremony featured ACS President Diane Grob Schmidt and members of the ACS Board of Directors. A further celebration of Polaroid and Edwin Land was held the following day at the M.I.T. Museum. On Sunday afternoon, a symposium was held on *Edwin Land and Instant Photography: Massachusetts's First National Historic Chemical Landmark* in the Division of the History of Chemistry (HIST) that was also cosponsored by President Schmidt.

AtlantiChem

The follow-up meeting of the taskforce to explore the possibility of organizing a series of pentennial conferences (analogous to PacifiChem) to bring together chemical scientists and engineers proximal to, but not necessarily abutting, the Atlantic Ocean was held with representatives of ACS, Canadian Society for Chemistry, Mexican Chemical Society (MCS), Brazilian Chemical Society, Latin American Federation of Chemical Associations, German Chemical Society (GDCh), Royal Society for Chemistry, and European Association for Chemical and Molecular Sciences in attendance. ACS presented a statement of principles governing the activities and obligations of the sponsoring societies; MCS proposed that the first AtlantiChem take place in December 2017 or January 2018 in Cancun. It was agreed that a small group representing the interested parties would meet via teleconference within a month to generate proposals to bring before the governing boards of the societies for action by the end of the year.

ACS Fellows

The following members of NESACS were recognized as ACS Fellows "for outstanding achievements in and contributions to science, the profession, and the Society:"

Peggy Cebe, Professor, Tufts University – Recognized as a leader in thermal analysis and calorimetry of polymers; pioneered the use of high-precision/

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Contribution Levels	Donation
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Gold	$3,500-5000
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Monthly Meeting

The 955th Meeting of the Northeastern Section of the American Chemical Society

Presentation of the James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry

Presentation of the the Arno Heyn Memorial Book Prize

Thursday, November 12, 2015
Holiday Inn Boston-Brookline
1200 Beacon Street, Brookline, MA

Agenda:

4:30 pm Board Meeting

5:30 pm Reception (Whitney B)

6:30 pm Dinner (Whitney B)

7:30 pm Evening Program, Dr. Katherine Lee, NESACS Chair, Presiding

Presentation of the Arno Heyn Memorial Book Prize to Mary Mahaney

Presentation of the James Flack Norris Award for Excellence in Teaching to:

Frank J. Creegan, W. Alton Jones Professor Emeritus, Washington College, Chestertown, MD.

Richard S. Moog, Professor of Chemistry, Franklin & Marshall College, Lancaster, PA.

James Spencer, William G. and Elizabeth R. Simeral Professor Emeritus, Franklin & Marshall College, Lancaster, PA.

For those who would like to join us for dinner, register by noon, Thursday, November 5, using PayPal: http://acssymposium.com/paypal.html. Select the pay with credit or debit card option and follow the additional instructions on the page. Cost: Members, $30; Non-members, $35; Retirees, $20; Students, $10. Dinner reservations not cancelled at least 24 hours in advance must be paid. If you wish to join us for this meeting and not eat dinner, please register by noon, Thursday, November 5, using PayPal: http://acssymposium.com/paypal.html. Select "Seminar only". The fee is $1.

New members or those seeking additional information, contact the NESACS administrative coordinator, Anna Singer, at secretary@nesacs.org or at (781) 272-1966 during regular business hours only.

THE PUBLIC IS INVITED

RESERVATIONS ARE REQUIRED BY Noon, November 5.
THOSE WITHOUT RESERVATIONS WILL NOT BE ADMITTED TO THIS EVENT.

Directions to the Holiday Inn Boston-Brookline can be found at http://www.holidayinn.com/hotels/us/en/brookline/bklma/hoteldetail/directions ◇

Abstract:

Process Oriented Guided Inquiry Learning (POGIL) is a student-centered, team-learning approach to instruction that is based on research on how students learn best. In a POGIL classroom environment, students work cooperatively in small groups on specially designed materials that guide them to develop key course concepts and to deepen and refine their understanding of those ideas. In addition to enhancing content mastery, the POGIL approach also emphasizes the development of important process skills such as critical thinking, problem solving, teamwork, and oral and written communication.

POGIL teams typically consist of three or four students, each of whom has an assigned role, with the instructor primarily serving as a facilitator of learning rather than a dispenser of knowledge or information. POGIL classroom materials are carefully

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Biographies:

Frank J. Creegan is W. Alton Jones Professor of Chemistry, *Emeritus* at Washington College, where he taught Organic Chemistry for 40 years. During that tenure he also held visiting professorships at the University of Konstanz (Germany) and the University of St. Andrews (Scotland). In 2003-2004 he was Visiting Scholar in Chemistry at University of California, Berkeley. He holds a Bachelor of Science degree in Chemistry from Merrimack College and a Ph.D. in Organic Chemistry from Fordham University. A physical-organic chemist with specialization in N-based heterocycles by training and research, he moved into the area of chemical education, where for the past 25 years he has focused on the development and dissemination of Guided Inquiry (Discovery-based and Learning-Cycle-based) laboratory experiments. He abandoned the lecture format for a student-centered approach

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NSYCC at ACS Boston: Young Chemists Engaging Nationally and Internationally

Catherine Rawlins - NSYCC Chair-Elect, Felicia Lucci - NSYCC Chair

Over the summer, the NSYCC has been keeping busy! During the 250th ACS National Meeting in Boston, we sponsored some great events that appealed to young chemists worldwide. We started the week out right! On the first night of the conference, we hosted a mixer at the Back Bay Social Club and ended up taking over the whole place, hitting their capacity of 250 people! We distributed over 200 custom-made NSYCC lapel pins, and made connections with numerous young chemists in our section, nationally, and internationally.

At the conference, the NSYCC co-hosted three symposia on a diverse range of topics appealing to young chemists, including: entrepreneurship, green chemistry, and building international relationships.

The first symposium, was co-hosted by Ray Borg and Wasiu Lawal was titled, *Careers for Young Professionals in Green Chemistry: Breaking Bad Chemistry Habits*. The symposium was also co-sponsored by the ACS divisions of Chemical Education (CHED), and the Green Chemistry Institute (GCI), among many others. The symposium successfully introduced the 50+ young chemists in attendance to the field of green chemistry by presenting them with various career paths in academia, industry, government, and business that utilize sustainable chemistry principles. The symposium also provided online tools, resources, and opportunities allowing young chemist to become active within the green chemistry community. Among the many great speakers was Dr. David J. Constable, the Director of the ACS Green Chemistry Institute. Due to the success of the program, there are plans to organize a similar symposium for the 252nd ACS Conference in Philadelphia.

The second symposium was called the *Younger Chemists Exchanging More than Currency: First—Euros and Dollars; Next—Rupees, Rands, and Reais* was hosted in collaboration with German Exchange Steering Committee and the National Younger Chemists Committee. Speakers included participants from the various exchange programs hosted by NESACS at the National Meeting. The NSYCC were very grateful to be included in the international exchange programming coordinated by NESACS. The German Exchange Steering Committee invited us to participate in many of the great activities planned for our guests throughout the week (see related article in this issue). As a result, we formed an international connection with young chemists from all over the world.

The final symposium the NSYCC co-chaired was with Small Chemical Businesses (SCHB), and hosted by our very own Past Chair Jackie O'Neil. Speakers discussed the challenges and surprises with starting up a new company and developing new technology. The symposium provided a platform for questions from potential chemical entrepreneurs in the audience.

2016 with the Younger Chemists Committee

2016 is going to be another great year for NSYCC. We plan to host a chemistry intensive local brewery tour, facilitate an outreach event for local middle school students, and tour several different chemical companies within the Northeastern Section to learn about the diversity of career options available.

Finally, the 18th Annual Northeast Student Chemistry Research Conference and Career Symposium will occur on April 23rd and 24th at UMass Boston's brand new Chemistry Building! We look forward to seeing you! For up-to-date information, visit nsycc.org and check out our Events page.

(L-R) Ray Borg (Career Chair), Felicia Lucci (Chair), Jackie O'Neil (Past Chair), and Tim Bergeron (Secretary) (Photo courtesy of Ray Borg)

(L-R) Catherine Rawlins (Chair-Elect), Primrose Nimnark (Publicity Co-Chair), and Caitlyn Mills (Social Chair) Photo courtesy of Catherine Rawlins

Not pictured: Brian D'Amico (Publicity Co-Chair), Kyle Cole (Treasurer), Valerie Ivancic (Webmaster) ◇

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www.facebook.com/nesacs

The Nucleus is Going Green: December 1, 2015 Deadline to Opt-in for a Mailed Hard Copy

NESACS supports efforts to "go green" and offers NESACS members the option of receiving The NUCLEUS as an electronic copy or a hard copy.

The electronic version is posted as a pdf on www.nesacs.org.

We are instituting a new policy, effective January 1, 2016, that NESACS members who wish to receive a paper copy must opt in and indicate this preference by December 1, 2015.

The following link leads to the opt in form on the NESACS website: http://www.nesacs.org/home_nucleus_opt-in2.html

Members who do not opt in by December 1, 2015 will receive an electronic copy. ◇

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ACS Awards

The ACS announced the recipients of the 2016 awards, which included the following NESACS members:

Eric N. Jacobsen, Harvard University: *Arthur C. Cope Award*, sponsored by the Arthur C. Cope Fund.

Lawrence T. Scott, Boston College and University of Nevada, Reno: *Arthur C. Cope Scholar Award*, sponsored by the Arthur C. Cope Fund.

Robert G. Griffin, Massachusetts Institute of Technology: *E. Bright Wilson Award in Spectroscopy*, sponsored by the ACS Division of Physical Chemistry.

Also, **J.C. (Tito) Scaiano**, University of Ottawa, will receive the *James Flack Norris Award in Physical Organic Chemistry* sponsored by the ACS Northeastern Section. ◇

Call for Abstracts!

14th Annual Symposium on Sustainability and the Environment

Saturday, November 21, 2015
9:00 AM – 3:00 PM

Bridgewater State University
Dana Mohler-Faria Science and Math Center

Please join us as at the only symposium dedicated to high school, college and university students working on either environmental projects, or sustainability issues that address problems from a campus, regional, national, or global perspective. Student projects covering all academic disciplines are welcome, including completed, in progress, and proposed work.

Abstracts and Registration must be submitted by Monday, November 9th using the URL link given below. Please note that there is a $20 registration fee, and that we can only accept on-line abstract submission and registration!

http://tinyurl.com/undergrad-abstract-submissions

Please email questions to Ed Brush (ebrush@bridgew.edu) ◇

Mary Mahaney to Receive the 2015 Arno Heyn Memorial Book Prize

Mary Mahaney longtime member of the NESACS Board of Publications is the 2015 recipient of the Arno Heyn Memorial Book Prize for her contributions to the publications of the Northeastern Section. The prize, which is a book of Mary's choosing, will be presented at the November Meeting. The book will include a cover plate commemorating Arno Heyn. More information on Arno and the Prize is available on the NESACS website.

Past recipients of the award have been: Mark Spitler and Sam Kounaves (2005), Vince Gale (2006), Vivian Walworth (2007), Myron Simon (2008), Arthur Obermayer (2009), Donald Rickter (2010), Harvey C. Steiner (2011), Karen Piper (2012), Mindy Levine (2013) and Morton Z. Hoffman (2014). ◇

For late breaking news, job postings and the latest meeting and event information please visit us at

WWW.NESACS.ORG

HENRY HILL

American Chemical Society Meeting, Boston, Aug. 17, 2015
By Arthur S. Obermayer

In February 1961, when I was 29 years old and leaving the monthly meeting of the Northeastern Section of the American Chemical Society, I saw Henry Hill, and told him that I had just started my own chemical research and development company and had rented 2400 square feet of laboratory and office space on the second floor of a building at Kendall Square, Cambridge. He indicated that he was leaving National Polychemicals and also planned to start his own research and development company, which he was calling Riverside Research Laboratory. We recognized that our goals were similar, and I asked him if he wanted to join me at Moleculon, and he responded affirmatively. Our close personal and professional relationship continued for the next three or four years.

For almost the entire first year, our income was negligible, and neither of us received any salary. I was paying for all the laboratory and administrative costs and those of a secretary/administrative assistant, and an occasional chemist. Our bookkeeping was from a single checkbook. Previously I had purchased at auction for $25 a whole stockroom of about 1000 chemical reagents from a commercial analytical laboratory that had gone out of business, and kept them in the garage of a friend until I had my own lab space.

My initial interest was in heat resistant polybenzamidazoles for missile heat shields, and my first experiments were in the kitchenette of my bachelor apartment. Our laboratory space had formerly been occupied by a paint manufacturing company, and adjacent to our building was a giant coal pile used by Cambridge Gas & Electric Co. Not infrequently we would have to clean surfaces from coal dust and paint pigments. The building itself was erected in 1862 on a pier which extended out into the Charles River, but much of the land had been filled in, and now it was on Main Street about 100 yards from the Charles River and 100 yards from Kendall Square right where the subway comes out from underground.

Until we received our first contract, we built no walls within our facility, and the separation of office from laboratory area was provided only by metal shelves erected by Henry's young son, Tony. They were filled with Henry's extensive collection of bound volumes of *Chemical Abstracts* and *Journal of the American Chemical Society*, Henry's proudest possession.

Shortly thereafter, Daggett Chocolate Factory, which was located on the other side of Kendall Square, went out of business, and we purchased at auction their stone lab benches and fume hoods. They were more than adequate for a number of years, but during the first six months the fume hoods smelled from chocolate. Without walls neither Henry nor I had much privacy.

Henry was ambitious but respectful. He was outgoing and had a positive attitude toward life. His professional, business and personal connections were very important to him, and he wanted to be respected and accepted by a predominantly white community. Henry was a good negotiator and knowledgeable businessman. Previously he had gained broad experience, not only in research, but also in building a chemical plant, overseeing operations and selling products to the polymer industry. Finally, he decided he had the necessary experience to build his own company rather than work for someone else. During our first year together he did some consulting related to his previous work at National Polychemicals on blowing agents. These were principally azo compounds that give off nitrogen on heating and were added to polymers to produce foams.

Above all, however, Henry was a professional in the true sense of the word. He was concerned with responsibilities of chemists to society, to their employers, and to their peers. He wanted to see chemists recognized as true professionals and not just as employees or tradespeople. It was primarily as a result of this dedication to professionalism that he became increasingly active in the American Chemical Society. He also spent considerable time building relationships within the chemical profession eventually leading to his election two years later as chairman of the Northeastern Section of the ACS.

He lived in a large, stately Victorian house on Riverside Street in a neighborhood of smaller houses in Watertown, not far from where the shoot-out ending the Marathon bomber's escape took place. His wife, Adelaide, was a Harvard Ph.D. sociologist who taught at Boston University and was from an elite black family. Sen. Ed Brooke was her first cousin, and her parents and grandfather were professors.

Henry was always well aware that he did not have the same cultural and professional family background as his wife. When my wife and I had dinner at the Hill home, he did most of the cooking. I specifically remember how he would use a laboratory separatory funnel to efficiently remove the oil phase, of gravy from the water phase because he was concerned with reducing the fat in his diet. Unfortunately, his concern was justified, since he died at 63 from a heart attack.

Henry did his undergraduate work at Johnson C. Smith University, a highly regarded black university founded in Charlotte, North Carolina, in 1867. He then wanted to go to MIT and had good enough grades and recommendations. However, when he initially applied, he was rejected, but

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Henry Hill

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chemistry Prof. James Flack Norris of MIT was concerned about the prejudice against Henry. Norris had been president of the ACS and was able to put enough pressure on the MIT decision-makers so that they admitted Henry to the graduate program the following year. Henry was eternally grateful to James Flack Norris. When the Norris Award for the Teaching of Chemistry given yearly by the Northeastern Section of the ACS, had excess funds, Henry made the personal effort to have the national ACS initiate a regular James Flack Norris Award in Physical Organic Chemistry.

In 1961 Arthur C. Cope, another chairman of the MIT Chemistry Department (who was on my thesis committee and a personal advisor) also became president of the ACS. He was a very talented and strong leader, but antagonized some faculty members, resulting in his losing his job as department chairman. Henry Hill reacted with one of his common expressions, "He who lives by the sword shall die by the sword." Henry's road to success was through positive connections with other professionals. He definitely felt that people who were overly aggressive would lose out in the end.

My two previous jobs were with small companies that had government contracts in the nuclear field. Because of this experience I also sought government contracts, describing our professional staff as consisting of myself, Henry Hill, and some local post-docs, graduate students, and other chemists who expressed a willingness for me to use their name, and to work for us part-time or more if we received funding from these contracts.

I distinctly remember sometime later the site visit by someone from the National Institutes of Health. We brought in everybody we could find — friends and people from neighboring businesses — so that it would look like an active, busy laboratory. The visitor walked through the laboratory, glanced at the people, fortunately did not ask them any questions, and then sat down with Henry and me to discuss technical matters. During the first year we were desperate enough so that we would accept income from almost any reputable source.

I previously had had a lot of experience in working with radioactivity and concluded early on that we needed to go through the long process to obtain a license for handling radiotracers on a laboratory scale. Tufts Dental School wanted to do some radiotracer research involving the saliva of dogs, but they did not have a license for laboratory use of radioactivity. They did not need any research help from us; only the occasional use of our facilities. I was going to let them use our facilities for a $300 payment (equivalent to $2400 today), but Henry encouraged me to set a price based on the value to them, since they appeared to have no realistic alternative. After expressing my concern that they would turn down too high a price, I deferred to Henry's more extensive business experience. I told them with a straightforward face that it would cost $1500 (or equivalent to $12,000 today), and they immediately said "yes."

As a result, I thought Henry was a negotiating genius. That represented most of our sales in the first year. In order to carry out their experiments each week they brought up to our lab in burlap bags what appeared to be dead dogs, but were only anesthetized, and injected them with radioisotopes. After taking saliva samples they would put the dogs back into their burlap bags and remove them.

Our major break came on December 12, 1961, when on the same day we received two government contracts, one from Air Force Cambridge Research Center for the synthesis and evaluation of benzimidazole derivatives for organic semiconductors.

The other contract was from the Air Force Special Weapons Laboratory in Albuquerque, NM for the development of sophisticated, chemically-oriented technology for participation in an underground nuclear test at the Nevada Test Site. These contracts and follow-ons essentially provided full-time employment for Henry and me for a couple of years. Although his income during those years was almost entirely from Moleculon, he was fiercely independent and wanted to grow Riverside Research Laboratory. He did some research on fluorocarbons with a friend at the National Bureau of Standards and had good connections with the Quartermaster Lab in Natick, MA, and the Boston Branch of the Office of Naval Research. He also carried out some studies on the synthesis of potential cancer chemotherapy drugs, and about the time he was leaving Moleculon he started on work related to consumer product safety.

The Air Force contract, which involved our participation in an underground nuclear test in Nevada, had the code name Marshmallow. It was a major test costing tens of millions of dollars and took place in a tunnel over a mile within Yucca Mountain. (In recent years, there was extensive discussion about storing nuclear wastes under Yucca Mountain. I smile when I hear concern about contamination of the environment, because I know that the interior of Yucca Mountain is already badly contaminated from the products of nuclear explosions.)

Our experiments were very sophisticated, and they took place within 26 foot long, 2" diameter thick-walled steel pipes whose interiors were facing the nuclear device. We needed to design a structure to hold these steel pipes in perfect alignment and assemble it within the Yucca Mountain tunnel. Henry worked with a Boston area metal fabrication firm to build the ideal structure to meet our stringent requirements. Both of us, as well as some other Moleculon personnel, went to Nevada to assemble this structure. The Nevada Test Site entrance is 65 miles from Las Vegas, and after passing through security, it was another 40 miles to Area 12, where the test took place. We lived in trailers near the tunnel entrance and worked in nearby sheds. There was a train that transported people and equipment on tracks for the one-mile trip into the region where a variety of equipment was located.

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The Global Reach of Younger Chemists during the ACS National Meeting in Boston

Contributions by Leland Johnson and Felicia Lucci, German Exchange Steering Committee

On behalf of the German Exchange Steering Committee, we would like to share some of the best moments from the highly successful visit to Boston by younger chemists from around the globe. Numerous volunteers from the NSYCC, the national Younger Chemists Committee (YCC), and local industries assisted in executing programming for 40 participants in each and every event, including representatives from our local section and international participants in the exchange. With tremendous budgetary support from many organizations, this well-choreographed and complex visit was successfully accomplished during the 250th ACS National Meeting.

At this time in 2001, readers of *The Nucleus* were reading stories about a new and successful international exchange program developed by NESACS and the Gesellschaft Deutscher Chemiker (GDCh), i.e., the German Chemical Society. Mort Hoffman recounted events of the first Exchange Program with Germany, describing the cultural, scientific, professional, and social events, including scientific presentations, discussions on education in Germany and the United States, and coordination with the American Chemical Society (ACS), the board of NESACS, the Younger Chemists Committee of NESACS (NSYCC) and others. Heavily involved in these efforts were the founders and early adopters of the program, Mike Strem, Ruth Tanner, Mort Hoffman, Bob Lichter, and Amy Tapper.

In addition to reeling in the solemn days following 9/11, readers of *The Nucleus* were allowed to escape with hope for the future of our chosen profession, chemistry. There was hope that this amazing new program could transcend political and cultural differences while providing opportunities for younger chemists from both our section and Germany to reach out and to discuss their research on an international stage. These interactions would set the students apart from their peers and improve their professional networks while broadening their view of the world.

Flash forward to 2015. Fourteen years later, the original founders are still having a crucial impact on the program while inspiring new leaders to continue with the work of the founders. This year the program expanded to include two additional international exchange programs inspired by and modeled after the Exchange Program with Germany. These new groups opened up new channels for international collaborations for all the younger chemists involved.

We thank our generous sponsors—The budget approved by NESACS supported a majority of the activities during the week!

- *The Northeastern Section of the American Chemical Society*
- *James Flack Norris Trust (NESACS)*
- *Henry A. Hill Trust (NESACS)*
- *The American Chemical Society (ACS)*
- *Younger Chemists Committee (YCC)*
- *Membership Activities Committee (MAC)*
- *Local Section Innovative Program Grant (IPG)*
- *Global Initiative Grant (GIG)*
- *Corporation Associates Local Section Grant (CA)*
- *The Northeast Region- P3 Award (NERACS P3)*
- *Gesellschaft Deutscher Chemiker (GDCh)*
- *JungChemikerforum (JCF)*
- *European Association for Chemical and Molecular Sciences (EuCheMS)*
- *European Younger Chemists Network (EYCN)*
- *The Royal Society of Chemistry (RSC)*
- *Genzyme- A Sanofi Company*
- *Strem Chemicals, Inc.*

More than a year ago, plans began to take shape for the German Exchange Steering Committee to host a joint exchange program with National YCC during the 2015 ACS National Meeting. More than twenty international delegates, representing 7 countries, would travel to Boston to represent the German Chemical Society Younger Chemists Committee (GDCh-JCF) and the European Young Chemists Network (EYCN). A third exchange program, International Young Chemists Network (IYCN), would also join us for a portion of the week, bringing an additional 25 participants representing 15 more countries. From the arrival of the first flights, delegates and our volunteers were constantly on the move, participating in the ACS meeting and networking events while enjoying the culture of New England.

The week began on Saturday, August 15th, at Logan International Airport with flights from Frankfort, Madrid, London, Amsterdam and elsewhere. After clearing customs, nearly twenty participants traveled to the College Club of Boston with Felicia Lucci, Ruth Tanner, Martin Isaks, and Leland Johnson. Perfectly positioned in Back Bay, the Col-

lege Club served as the operations hub for volunteers and the living quarters for delegates during the week. Shortly after arrival at the hotel, the NSYCC, led by Felicia Lucci, began aiding our guests by distributing maps, schedules, and registration credentials to each of the 20+ delegates and supporting members.

Immediately the group departed for the first of many engaging dinners; this one at Maggiano's Little Italy in Back Bay. The younger chemist at the dinner included twelve members of the JungChemikerForum (JCF) from Germany and six participants from Younger Chemists Crossing Borders (YCCB), as well as the chairs of the JCF, EYCN, and NSYCC. Over a welcome reception and dinner, an inviting atmosphere was enjoyed as participants began to compare and contrast the activities of young chemists worldwide. Energized by cheerful networking, good food, and a few adult beverages, the dinner kicked off the events of the week in style. Brian D'Amico diligently recorded scores of images on Saturday evening, contributing to hundreds of photos he collected throughout the week. Each picture will serve as permanent record of the development of global friendships and a reminder of the bonds created as a result of participation in the joint exchange program.

Members of the 2015 GDCh-JCF Exchange to Boston pose after the welcome dinner with the NSYCC at the welcome dinner at Maggiano's Little Italy in Back Bay, Boston. Image courtesy of Brian D'Amico

Starting on Sunday, August 16th, the chemists traveled daily to the Boston Convention and Exposition Center (BCEC) to listen to technical presentations and engage in scientific discussions. For many of the European delegates, they had never attended a scientific meeting as large as the ACS national meeting. At first the number of talks overwhelmed our guests, but they immediately began attending presentations relevant to their own research. During the week, the delegates gave more than 30 talks; these talks initiated collaborative discussions. The technical program left a fantastic scientific impression on our guests. As relayed by one of the JCF members, "The ACS Meeting & Exhibition was an amazing experience. I have never been to such a big meeting before. Furthermore, the exchange with American colleagues was very inspiring, and the whole atmosphere between the different people was great…Definitely an experience I will remember for the rest of my life."

On Monday, delegates, alumni, and society representatives participated in an all-day symposium and lunch at the Seaport Hotel in Boston. The title of the symposium was *Younger Chemists Exchanging More than Currency: First—Euros and Dollars; Next—Rupees, Rands, and Reais*. The past, present and future operations of various exchanges, the personal experiences of several delegates, and entertaining, yet poignant "my-path-to-here" presentations ruled the symposium schedule. After nine hours in one room, we each took away several action items from the Seaport Hotel. Specifically, young chemists' organizations worldwide have the potential to impact the progress of both their societies and individual participants. Regardless of location, each organization provides multiple opportunities for personal growth and unforgettable experiences.

Alumni of the Exchange Program with Germany, Lauren Wolf (2003, now with C&EN) and Leland Johnson (2006, now with Conditas Biotechnology Group and 2016 Chair-Elect, NESACS) spoke to Monday's audience about the positive impacts of the exchange on personal career paths and the influence of the exchange on other similar programs.
Image courtesy of Mort Hoffman.

Discussions about the impact of young chemists continued on Wednesday during a meeting for an ACS initiative to develop a global network for young chemists. The workshop featured passionate discussions about global inclusion of all young chemists, demonstrating the commitment of the next generation of scientists to their home societies and to international collaborations. In addition to furthering intercontinental relations, the event provided local young chemists with the opportunity to become actively involved with the international activities of the ACS. Many participants of International Young Chemists Network (IYCN) programming joined us for the remainder of the week to continue to build upon these relationships.

Though many scientific and societal collaborations were initiated during the meeting, plenty of socializing also occurred. We attended numerous receptions and social events with our guests during the meeting. Post-meeting

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Young Chemists Global Reach

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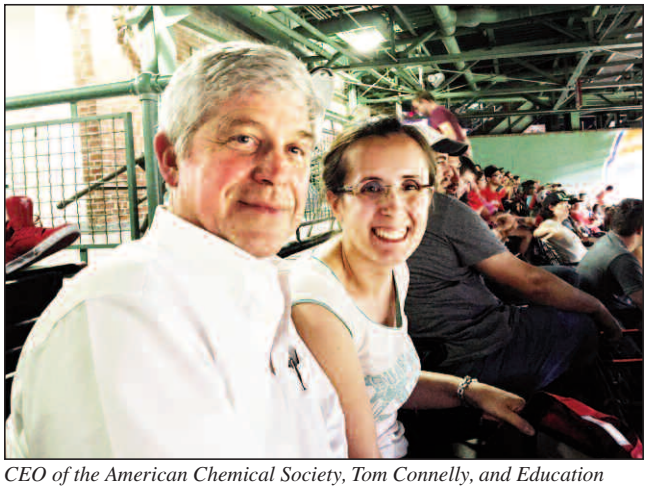
receptions began on Sunday night with the International Attendees Reception where delegates and international chemical society leaders mingled, built new connections, and offered personal invitations to some of the events planned for the week. On Monday, many delegates attended *Sci-Mix* to support their colleagues' poster presentations and to converse about scientific results in a more relaxed atmosphere. The networking continued at the Chemluminary Awards and Reception, where we all applauded the Public Relations Committee for receiving two awards. Dancing to 90s pop music continued well into the night. In addition to networking events organized for the meeting, many delegates enjoyed after hours discussions and refreshments with the NSYCC. On Sunday night, the NSYCC hosted a *wicked cool* get together at the Back Bay Social Club. Originally slated for a small gathering of 10-15 people, nearly 250 chemists of all ages showed up to unofficially kick off ACS week and the week of exchange events.

Nearly 250 people joined the local NSYCC at the Back Bay Social Club on Sunday evening. Image courtesy of Brian D'Amico.

After the scientific program on Wednesday, the cultural portion of the exchange program officially began with a baseball game at Fenway Park. The game was one of the highlights of the exchange, as local members of NESACS enjoyed explaining the intricacies of baseball to our intrigued guests. Sponsored entirely by a generous donation from Strem Chemicals, Inc., we traveled as a group to Fenway Park and enjoyed a win for the Red Sox over the Cleveland Indians! Anticipated for some time, many guests joined us to watch the Red Sox score 4 home runs for an entertaining win, 6-4! Despite some question as to whether the section allowed adult beverages or not, many enjoyed the game and the libations, with additional guests, including 2011 President of the ACS, Nancy Jackson, and CEO of the ACS, Tom Connelly. After the game many continued the night's celebrations in the bustling bars near Fenway Park. At least one of our German delegates commented, "I really liked the baseball game!" Though many on the exchange had never before attended this bedrock activity of Americana, most were able to glean a great deal of background from an explanation of baseball, provided in advance, by NESACS' own Mort Hoffman.



CEO of the American Chemical Society, Tom Connelly, and Education Coordinator for the GDCh, Education and Science, Elisabeth Kapatsina, share a moment at Fenway Park. Image courtesy of Leland Johnson.

Thursday provided a much-anticipated trip to Woods Hole Oceanographic Institute (WHOI). With additional members of the International Young Chemists Network joining us, we traveled down to tour WHOI. Due to our large size (>40 people), we split up chemists of similar background into the Hydrogen-Carbon and Oxygen-Nitrogen groups to tour the Quissett Campus, where we saw the laboratories for carbon dating. The highlight of the tour was seeing Alvin, the research submarine. Between tours we enjoyed the beautiful August day while having a relaxing lunch on the waterfront.

Kevin Nagel (GDCh), Christine Dunne (YCC, YCCB) and Goswin de Kruijff (GDCh) enjoy lunch at the docks outside of WHOI.
Image courtesy Brian D'Amico

That evening, Jackie O'Neil (Alkermes) and Jens Breffke (NIST, YCCB) organized an amazing social and professional networking event at Goodwill Park that facilitated networking between younger chemists and society representatives from around the globe. With sponsorship from the RSC, the GDCh, and EuCheMS, representatives in attendance included founding members of the German Exchange Committee, NESACS, EYCN, IYCN, and, of course, the delegates. We were honored to welcome David Cole Hamilton, president of EuCheMS, who joined us for the day.

Forming lasting friendships amongst exchange participants. (left to right) Fernando Gomollón Bel (EYCN Chair), Catherine Rawlins (NSYCC Chair-Elect), and Michael Linden (JCF Chair) at Woods Hole Oceanographic Institute. Image courtesy of Catherine Rawlins.

On Friday delegates were temporarily split into smaller, more manageable groups to tour MIT or Harvard. Alumni from our 2014 Jena Exchange arranged tours of university labs. After the tours each group walked along the Charles River to the Sanofi's (Genzyme) Allston cGMP production plant, where Andrew Scholte and his colleagues arranged for lunch and a tour of their facilities. There we explored the well-designed and visionary plant with the site head and others from Genzyme. Our tour guides were helpful, informative, and funny. Each of us learned a great deal about rare diseases and the serious challenges faced by companies who choose to tackle some of the hardest questions in health care.

As our week came to an end, Friday was the evening to say "farewell" to our new friends. We found a dinner and cruise on The Odyssey from Rowes Wharf might be a great venue for the last night the group was together. This turned out to be a great opportunity to reflect on the amazing week of science and fun and to focus on the future events that will certainly bring some of us together again and again. The food on the boat was great! The atmosphere was perfect, despite a bit of rain earlier in the evening. Our group enjoyed all decks on the boat and the many different views of the Boston Harbor and our beloved host city. The celebration continued after departing from the boat. At a local bar many other colleagues we met during the week joined us for a final celebration.

Delegates from three exchange programs converged on Sanofi's Allston production facility. We thank our sponsors for their ongoing support of programs like these. Image courtesy Brian D'Amico.

Delegates from GDCh, YCCB, IYCN exchange program pose for a picture with members of NSYCC and the Steering Committee before boarding the boat for a farewell dinner. Image courtesy of Premier Yachts, Inc.

Delegates from GDCh, YCCB, IYCN exchange program pose for a picture with members of NSYCC and the Steering Committee before boarding the boat for a farewell dinner. Image courtesy of Premier Yachts, Inc.

In conclusion, the return on investment our section has realized from this program for the last 15 years will continue in earnest for the years to come. Local younger chemists are eagerly preparing their applications for two outbound exchange visits to Europe to attend the JCF-Frühjahrssymposium in Kiel, Germany and the EuCheMS Chemistry

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ACS National Meeting

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high-accuracy heat capacity measurements of polymer materials science to the study of biomacromolecules; served as Chair of the Polymeric Materials: Science and Engineering Division (PMSE), managing participation at the 2001 national meetings; as PMSE Program Chair, she organized programs for the 2000 national meetings.

John (Jack) Driscoll, Founder and President, PID Analyzers – Developed the first photoionization detector (PID) for parts-per-billion levels of organic compounds by gas chromatography in 1973; developed a PID for parts-per-trillion levels of arsenic and mercury in food in 2013; started the Cape Cod Science Café and has organized 12 since 2011; also started the STEM Journey Event for K-12 students and organized the first two with more than 1,000 participants.

Michael Singer, R&D Manager for New and Special Products, Sigma-Aldrich – Recognized for original research contributions in the field of cannabinoid chemistry and design and validation of chemistry for the high-throughput synthesis of proprietary combinatorial libraries; served as Secretary (1998-present) and Councilor (1996-present) for NESACS and was recognized with the Henry Hill Award for Outstanding Service to NESACS (2008); ACS committee appointments have included Chemical Abstracts Service, Local Section Activities, and, currently, Meetings & Expositions.

George Whitesides

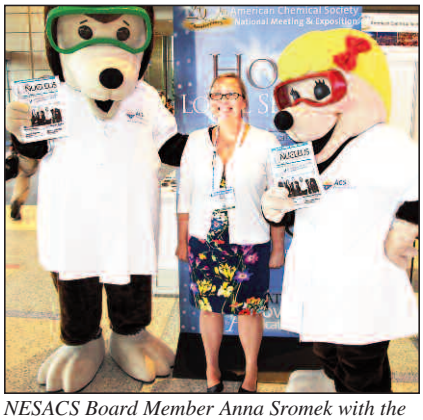
Perhaps the hardest working individual at the meeting was George Whitesides, the Woodford L. and Ann A. Flowers University Professor at Harvard University. He spoke on Sunday noon at the ACS Board of Directors Open Session on "Reengineering Chemistry." In the afternoon he gave a talk in a symposium on *True Stories from Entrepreneurs* in the Division of Small Chemical Businesses (SCHB), "Generating Effective Diagnostic Technology for the Developing World." On Monday morning, he spoke in a symposium on *Thirty Years of Langmuir: Looking Back and Forward* in the Division of Colloid and Surface Chemistry about "Charge Transport by Tunneling Through SAMs." He spoke on "Biomaterials Interfaces" in a Division of Physical Chemistry symposium on *Protein-Nanomaterial Interfaces and Protein Coronas* in the afternoon followed by a talk on "From University to Reality" in the Henry Hill Symposium of SCHB. Later that afternoon, he gave the Fred Kavli Innovations in Chemistry Lecture, "Problems, Puzzles, and Inevitabilities in Research," to an overflow crowd at BCEC. Bright and early on Tuesday morning, he was the featured speaker at the Senior Chemists Breakfast; in the afternoon he spoke about "From Discovery to Commercialization" in an International Activities Committee symposium on *International Entrepreneurship*. He was also the coauthor of a presentation on Sunday morning in a symposium on *Peptides, Proteins, and Amino Acids* in the Division of Organic Chemistry (ORGN), and of one on Wednesday morning in a symposium on *Frontiers of Functional Interfaces* in ORGN. Presumably he rested the next day.

Henry Hill Centenary

Four symposia were held commemorating the centenary of the birth of Henry Hill (1915-1979), who was an active member of NESACS (Chair, 1963) and the first African-American president of the ACS (1977): *Professional Legacy,* Division of Professional Relations (PROF); *His Legacy in Science and in Professional Service*, HIST; *Commercial Enterprises in the Polymer Sector*, SCHB; *Innovations in Polymer Discovery and Applications*, Division of Polymer Chemistry. On Tuesday, August 18, a reception was held to celebrate the naming of Henry Hill as the (posthumous) recipient of the PROF Henry Hill Award; accepting the award for his father was Tony Hill. Also recognized was Christine Jaworek-Lopes (Emmanuel College), the 2015 recipient of the Henry Hill Award for Outstanding Service to NESACS.

ChemLuminary Awards

NESACS received two ChemLuminary Awards at the 17th annual ceremony (*Promoting Chemistry Through Innovation and Passion*) on Tuesday, August 18. The award for Outstanding Collaboration Between a Local Section and Division from the Local Section Activities and Divisional Activities Committees was presented to NESACS, the Division of Development and Management, and SCHB for their participation in the ACS Entrepreneurial Forum at Nova Biomedical in Waltham in April 2014. The award for an Outstanding NCW Event for a Specific Audience recognized the Wicked Cool day of family fun with the Cape and Island Boy Scouts Council of America in Yarmouthport as part of a Cape Cod Science Café in October 2014. Accepting both awards were Jack Driscoll and Jennifer Maclachlan (PID Analyzers).



NESACS Board Member Anna Sromek with the ACS Moles at the NESACS Hospitality Booth (Photo by M.Z. Hoffman)

German Exchange

Twelve graduate students from Germany joined the Chair of the *Jungchemikerforum* (JCF) and two accompanying persons to Boston for the 15th annual Exchange Program between NESACS and GDCh. The students made presentations in technical sessions and Sci-Mix, and were joined by local exchange alumni and representatives of Young Chemists Crossing Borders, European Young Chemists Network, International Young Chemists Network, and the NESACS younger chemists for meals, visits to local laboratories, a Red Sox game, an excursion to Cape Cod, and a

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Henry Hill

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Moleculon was by far the smallest company involved in this program. We were working with engineers from major defense contractors, such as Lockheed, Sandia Corporation, and GE, as well as Department of Defense and Energy technical personnel.

We needed to meticulously clean the pipes so there would be no residual contamination inside, but it was difficult for us to convince the plumbers' union to allow us to do it. Henry went back to Boston before the test took place, but I stayed on. The pipes had many donut-ring-like explosive closures to seal off segments of the pipe in a small fraction of a second after the nuclear explosion. White wires leading off from the pipes were electronic detonators. Our equipment was recovered after the nuclear explosion.

Disarray was caused by the explosive closures, which protected the pipe interiors from the ambient environment after the nuclear explosion. The region where the equipment was placed was not radioactive after the nuclear test, because the tunnel was designed to close in on itself before radioactive gases and particulates could escape.

However, recovery was carried out by people wearing self-contained respirator masks. Although this was hardly the environment in which most chemists work, when the pipe segments were brought back to Cambridge, we successfully carried out some complex, quantitative chemical experiments. They included a radiotracer experiment where we distinguished the fate of five differently emitting radioisotopes in the same sample. We also measured the kinetics of gaseous reactions and ultra high temperature polymer degradation.

Eventually Henry and I amicably parted ways. I wanted him to work full time for Moleculon, but he wanted to retain his independence with Riverside Research Laboratory. As his relocation announcement put it, Riverside was moving from the banks of the Charles River to the banks of the Merrimack River in Haverhill. Thereafter we remained friends but maintained separate business activities.

The industrial chemical research world for small businesses has changed a lot since Henry and I got started. Then there were no angel investment groups, no small business incubators or accelerators, no public forums, no crowd sourcing, and only one high tech venture capital investment company in the U.S. Patent title under government contracts stayed with the government, and the Small Business Innovation Research program did not exist. It was much riskier to start a new chemical business then, and the time it took for each of us to get established was typical. Our mutual support during those early years allowed both of us to be successful. ◇

ACS National Meeting

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Boston harbor cruise. A full-day symposium was held on Monday in the program of the Younger Chemists Committee, *Younger Chemists Exchanging More than Currency: First – Euros and Dollars, Next – Rupees, Rands, and Reais*; among the speakers were Marinda Wu (2013 ACS President), Elisabeth Kapatsina (GDCh), Michael Linden (JCF), and Lee Johnson (NESACS). Lauren Wolf (*C&EN*), 2003 Exchange participant as a Ph.D. student at B.U., was the speaker at the luncheon between the sessions.

Host Section Hospitality Booth

Members of NESACS were present at the host section booth in BCEC from Saturday afternoon through Thursday of the meeting, answering questions about the program and helping attendees find their way around Boston.

Council

NESACS Councilors Michael Singer and Morton Hoffman were recognized for their 15 years of service on the ACS Council. Council also approved a resolution unanimously, thanking NESACS for all the work its members did to make the Boston meeting a great success. ◇

Global Reach

Continued from page 13

Congress in Seville, Spain. Every year, this exchange initiates a passion for international collaborations and reveals the opportunities available within NESACS for young chemists. All but one of our YCC chairpersons has come from the Exchange Program with Germany, while several of our German Exchange Steering Committee members have been Chairs of NESACS. Finally, our section should, based solely or partially on our activities described here, be well positioned to apply for and earn national and international recognition through the following **Chemluminary Awards-**

1) YCC
   Outstanding Local Section Younger Chemists Committee
2) YCC
   Outstanding or Creative Local Section Younger Chemists Committee Event
3) LSAC and DAC
   Outstanding Collaboration Between A Division and Local Section
4) Corporation Associates
   Outstanding Local Section Industry Event
5) Committee on International Activities
   Global Engagement Award: Local Section
6) Local Section Partnership Award
   Most Innovative New Activity or Program
7) Outstanding Performance by a Local Section – Very Large Size Category Award (This is based upon the year-long efforts of the section)

Our committee will work with the other parties involved in our events to self-nominate for these awards. Exchange programs like this could not occur without strong volunteers and without strong local, regional, national, and international support. On behalf of the committee, we thank our sponsors, our volunteers, our participants, and you very much! ◇

Biographies

Continued from page 5

to learning that involved classroom group-based activities that often brought student-generated laboratory data into discussion that led to the development of important chemistry concepts. He was a founding member of the U.S. Department of Education-funded Middle Atlantic Discovery Chemistry Project (MADCP) and co-PI of the 2002 NSF grant that launched the POGIL Project.

Richard S. Moog is Professor of Chemistry at Franklin & Marshall College and Director of The POGIL Project. He received an A.B. in Chemistry from Williams College and Ph.D. in Physical Chemistry from Stanford University. At F&M since 1986, he regularly teaches courses in general chemistry and physical chemistry, where he has used a student-centered, guided inquiry instructional approach for over 20 years. In 1994, Moog was the principal investigator for the U.S. Department of Education–funded Middle Atlantic Discovery Chemistry Project (MADCP) and served as the leader of that organization for many years. He was also the lead P.I. for two large National Science Foundation grants that established and expanded The POGIL Project from 2003 to 2011. With F&M colleague John Farrell, he authored the collection of POGIL activities for general chemistry, *Chemistry: A Guided Inquiry*, which is now in its 6th edition. He is also the co-author, along with John Farrell and Jim Spencer, of two collections of POGIL activities for physical chemistry: *Physical Chemistry: A Guided Inquiry: Thermodynamics* and *Physical Chemistry: A Guided Inquiry: Atoms, Molecules, and Spectroscopy*. In addition, he has developed guided inquiry experiments for use in the general chemistry laboratory. He has organized numerous symposia at national ACS and BCCE meetings concerning POGIL (and active learning more generally) throughout the chemistry curriculum, and has given dozens of presentations, posters, and workshops on POGIL. He is also coauthor of several journal articles and book chapters and the co-editor of the ACS Symposium Series volume: *Process Oriented Guided Inquiry Learning*.

James Spencer is the emeritus William G. and Elizabeth R. Simeral Professor of Chemistry at Franklin & Marshall College. A native of West Virginia, he was named the 2005 recipient of the George C. Pimentel award in Chemical Education for "the myriad ways in which his lifelong commitment and vision have enhanced the understanding of chemistry students and teachers throughout the country."

Spencer received his B.S. from Marshall University in 1963 (which honored him with its outstanding alumnus award in 2003), and his Ph.D. from Iowa State University in 1967. Following his graduate studies, he joined the faculty of Lebanon Valley College and then the Franklin & Marshall faculty in 1980. He retired from the latter in 2007.

At F&M, Spencer was instrumental in establishing the Hackman Fellows program, a collaborative summer research program that pairs students and faculty. He was a founding member of the Council on Undergraduate Research and spearheaded studies to foster research proposals from liberal arts colleges. A recipient of F&M's Lindback Award for Distinguished Teaching and the Bradley R. Dewey Scholarship that recognizes outstanding research, Spencer is a member of the American Chemical Society and the American Association for the board of *Chemistry* (1973-77). He also served as chair of the ACS Task Force on the General Chemistry Curriculum, and earned the Chemical Manufacturer's Association National Catalyst Award in 1987. He was the recipient of the ACS award for research at an undergraduate institution and has received several grants from Research Corporation, Petroleum Research Fund, Project SEED, the National Science Foundation, and Dreyfus.

Spencer has authored more than 100 articles, many co-authored with students, as well as several modular experiments. He is also the co-author of a general chemistry text, the guided-inquiry modules, and collections of activities in thermodynamics and quantum chemistry.

He has served as a member and chair of the Advanced Placement Development Committee, and the co-chair of the AP Redesign Panel. In addition, he was lead consultant for the AP Chemistry Guided-Inquiry Experiments College Board in 2013 and served as editor-at-large and content adviser for the POGIL high-school chemistry collections published by Flinn Scientific.

As a guiding force of The POGIL Project, Spencer has maintained a lifetime commitment to the cause of undergraduate teaching and research and has become a national catalyst for curricular reform in introductory chemistry. ◇

CAREER DEVELOPMENT

Being an active participant in NESACS activities will enable you to network with major institutions and corporations in our area and can open up new career opportunities.

The NESACS Board of Publications, which is responsible for both the *Nucleus* newsletter and the NESACS website, is looking to increase its activities in this arena.

We would like to expand our capabilities for keeping our membership informed on what is happening in our field and how to adapt to changing times and new technologies.

You can help us do that. All we ask of you is a few hours a month and a smile.

Call or email to see what opportunities are available.

contact -- Vivian Walworth
NESACS Board of Publications
Phone - 978-369-3735

Email vwalworth@comcast.net

What exactly goes on at NESACS' monthly Board meetings?
www.nesacs.org/reports

Abstract

Continued from page 5

designed, typically following a learning cycle that begins with exploration of data or other information for the students to interpret or analyze. A series of guiding questions helps students make sense of this information and leads them to the development of the intended concept. This concept is then reinforced through an application to a new situation or context. Frequently, this "application phase" then leads into a new exploration, and the cycle begins again.

In this interactive presentation, attendees will have an opportunity to experience (briefly) a POGIL classroom environment. We will use this experience as a basis for further discussion of the overall philosophy of the POGIL pedagogic approach, the research on student learning and cognition on which it is based, and the evidence of its effectiveness in promoting student learning and retention of information. ◇

What's Yours?

Many local employers post positions on the NESACS job board.

Find yours at www.nesacs.org/jobs

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- Companies for laboratory and management positions
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- www.mboservices.net
- www.nesacs.org

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- We have more activities than any other Section.
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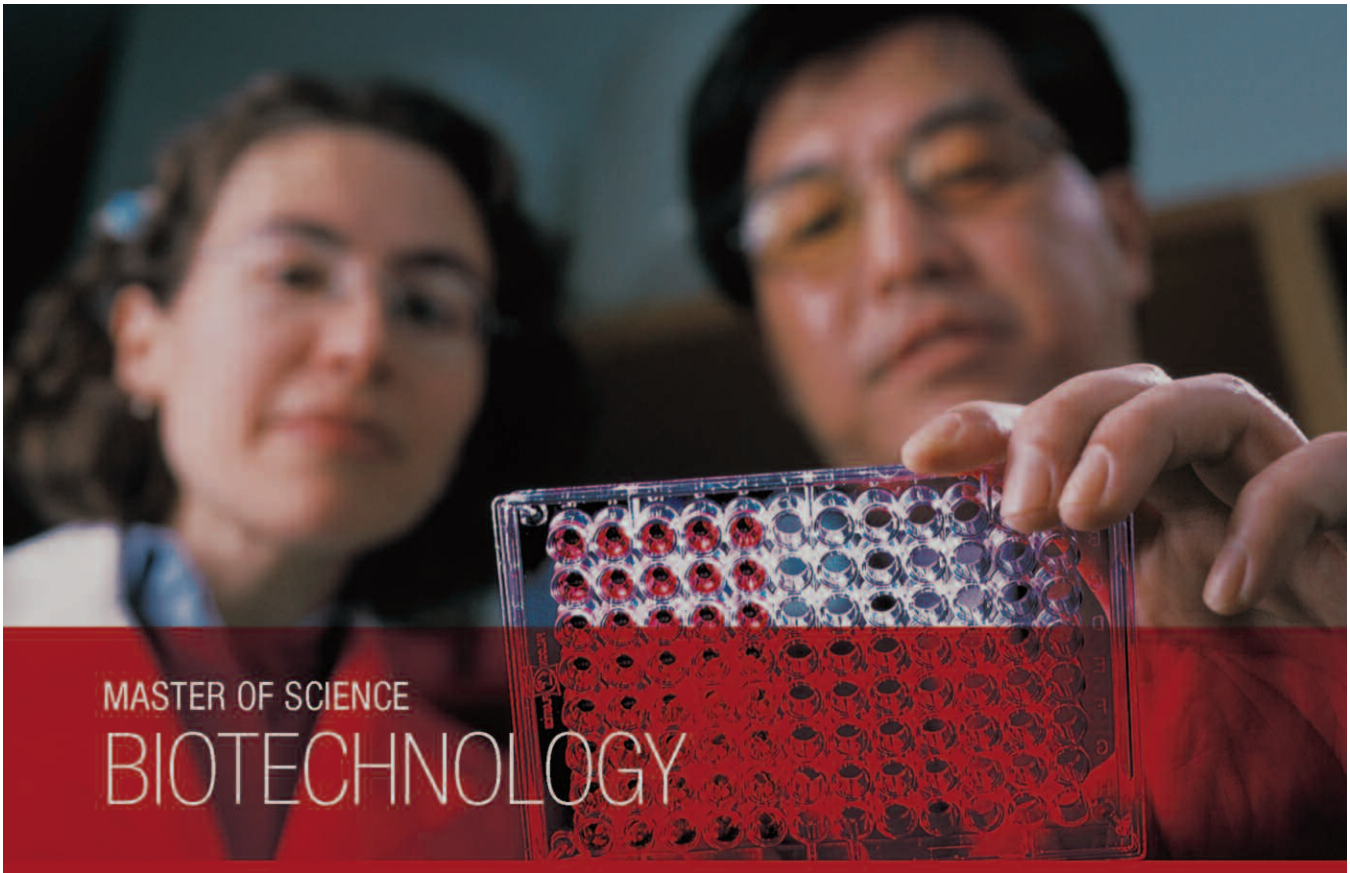

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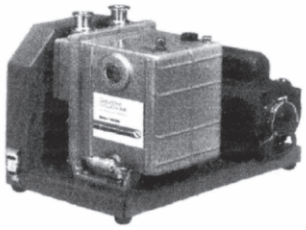

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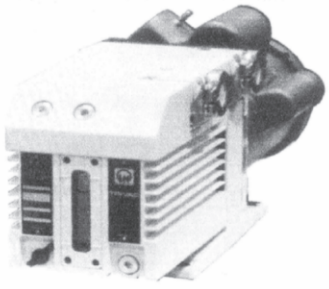

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Calendar

Check the NESACS home page for late Calendar additions: http://www.NESACS.org

Note also the Chemistry Department web pages for travel directions and updates.

These include:

http://www.bc.edu/schools/cas/chemistry/seminars.html
http://www.bu.edu/chemistry/seminars/
http://www.brandeis.edu/departments/chemistry/events/index.html
http://chemistry.harvard.edu/calendar/upcoming
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http://www.chem.umb.edu
http://www.umassd.edu/cas/chemistry/
http://www.uml.edu/Sciences/chemistry/Seminars-and-Colloquia.aspx
http://www.unh.edu/chemistry/events

November 2

Prof. Yan Yu (Indiana University)
Boston University, Life Sciences and Engineering Building, Rm B01
4:00 pm

Prof. Jennifer Prescher (UCal-Irvine)
"*Expanding the imaging toolbox*."
Harvard, Pfizer Lecture Hall
4:15 pm

November 3

Prof. Robert Hamers (U. Wisconsin-Madison)
Tufts, Pearson, Room P-106
4:00 pm

Prof. Sharon Song (UNH)
Univ. of New Hampshire, Room N104
11:10 am

November 9

Prof. Huiwang Ai (UCal-Riverside)
Boston University, Life Sciences and Engineering Building, Rm B01
4:00 pm

Prof. Phil Baran (Scripps)
"*Studies in Natural Product Synthesis*."
Harvard, Pfizer Lecture Hall
4:15 pm

November 12

Prof. Ken Houk (UCLA)
Dr. Jingjun Yin (Merck)
MIT, Room 6-120
4:00 pm

Prof. Daniel Raleigh (Stony Brook University)
Tufts, Pearson, Room P-106
4:00 pm

November 16

Prof. Qui Wand (Duke)
Boston University, Life Sciences and Engineering Building, Rm B01
4:00 pm

Prof. Seth Herzon (Yale)
Harvard, Pfizer Lecture Hall
4:15 pm

November 17

Prof. Amy Herr (UCal-Berkeley)
"Targeted proteomics with single-cell and sub-cellular resolution."
Tufts, Pearson, Room P-106
4:00 pm

Dr. Gerald J. Tanoury (Vertex Pharmaceuticals)
Univ. of New Hampshire, Room N104
11:10 am

November 23

Prof. Robert Knowles (Princeton)
Boston University, Life Sciences and Engineering Building, Rm B01
4:00 pm

November 24

Prof. André K. Isaacs (Holy Cross)
Univ. of New Hampshire, Room N104
11:10 am

November 30

Prof. Andrei Kutateladze (Denver University)
Boston University, Life Sciences and Engineering Building, Rm B01
4:00 pm

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

Xavier Herault, email: xherault(at)outlook.com
◇

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