

THE NUCLEUS

December 2010

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Monthly Meeting

*Medicinal Chemistry Symposium
Emerging Treatments for CNS Disorders*

Non-Traditional Careers

By Mindy Levine

Report from Taiwan

by Morton Z. Hoffman

NESACS Golf Tournament

By Amy Tapper

Report From Taiwan

21st International Conference on Chemical Education (ICCE 2010)

Morton Z. Hoffman, Boston University <hoffman@bu.edu>

The Taipei International Convention Center, which stands in the shadow of Taipei 101, the second tallest building in the world, was the site on August 8-13 of ICCE 2010 (*Chemical Education and Sustainability in the Global Age*), which attracted 368 attendees from 45 nations on five continents and featured plenary lectures, 150 oral presentations and 87 poster presentations, workshops, special symposia, and a chemical demonstration activity. In addition, four IUPAC and one Federation of Asian Chemical Societies (FACS) travel scholarship awards were presented to young chemistry educators from China, Indonesia, Malaysia, and the Philippines, and the ICCE Distinguished Contribution to Chemistry Education Awards were given to Peter Atkins (U.K., *in absentia*) and Lida Schoen (Netherlands). The local organizing committee was chaired by Mei-Hung Chiu (National Taiwan Normal University). Nobel Laureate Yuan-Tseh Lee (Academica Sinica, Taiwan) served as the honorary conference chair.

Plenary lectures were given by ten distinguished chemists and educators: Yuan-Tseh Lee (Taiwan), *Scientists in a Globalized World*; Richard Zare (U.S.), *The Power of a Failed Lecture Demonstration*; Akira Fujishima (Japan), *How to Encourage Young People*; John Gilbert (U.K.), *The Place of the Informal Sector in the Development and Exercise of Chemical Literacy*; Joe Krajcik (U.S.), *Developing Students' Understanding of the Transformations of Matter over Time*; Terry Collins (U.S.), *Green Chemistry: On the Responsibility of Chemists to Advance Science with Human Health and the Environment Clearly in Mind*; Jorge Ibáñez (México), *Teaching Introductory Environmental Chemistry Through Microscale Experiments*; David Treagust (Australia), *The Development and Use of Diagnostic Instruments for Assessing Students' Chemistry Knowledge and Understanding*; Ilka Parch-

mann (Germany), *Competencies in Chemistry – A Critical Reflection*; Lei Wang (China), *Exploring Internet-based Training Model for Cross-provincial Large-scale Chemistry Teachers' Preparation for the New Curriculum in Mainland China*.

A highlight of this IUPAC-sponsored conference was the panel discussion, which was moderated by Peter Mahaffy (Canada), chair of the IUPAC Committee on Chemistry Education. Featured were the presidents of five national and international chemical societies (Wen-Ent Pan, Chemical Society located in Taipei; Joseph Francisco, ACS; Ting Kueh Soon, Institut Kimia Malaysia; Choon Do, Korea Chemical Society; Maribel Nonato, Philippine Federation of Chemistry Societies; Yuan-Tseh Lee, International Council for Science), and the chair of the EuCheMS Division of Chemical Education, Ilka Parchmann. They discussed their perspectives on the role that chemical education will play in the future of humankind. Another highlight was the spirited discussion between Yuan-Tseh Lee and Richard Zare on issues of global climate change, the sustainability of resources, and energy supplies.

The parallel oral and poster sessions centered around the following themes and their relation to chemistry education: environmental and sustainable development, globalization, public understanding, e-learning and innovative instruction, research into learning and understanding, classroom and laboratory teaching, evaluation and assessment, microscale labs, encouraging female students, and promoting the International Year of Chemistry (IYC) in 2011.

Workshops were offered on enhancing students' understanding, low-cost instrumentation, environmental chemistry, and chemistry and art. In addition, a Young Ambassadors of Chemistry (YAC) workshop was held for 12 high-school teachers, followed



(l-r) Ting-Kueh Soon (Malaysia), Lida Schoen (Netherlands), Morton Hoffman (U.S.)



(l-r) Joseph Francisco (U.S.), Liberato Cardellini (Italy), Richard Zare (U.S.)

Photographs (by M.Z. Hoffman)

by a public program with 36 high school students in the Street Dance Plaza of the Taipei City Hall.

The organization of the program gave participants ample time to interact and develop connections. In addition to morning and afternoon coffee/tea breaks and daily group lunches, evening events included a welcoming reception, a Participants' Night with professional performers, as well as national songs and dances by ICCE attendees, and a multi-course banquet at the opulent Grand Hotel. The day-long conference tour in the middle of the week to Yeliou Geopark and the National Center for Traditional Arts provided a delightful break.

Details of the entire conference, including videos of the plenary lectures and an extensive photo gallery, are available on the ICCE 2010 website: <<http://icce2010.gise.ntnu.edu.tw>>.

Committee on Chemistry Education (CCE)

ICCE 2010 was also the occasion of the annual meeting of CCE, which consists of titular members, divisional representatives, and national represen-

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Non-Traditional Careers

By Mindy Levine

When Dr. Christine Bellon was in graduate school at MIT, she spent “every waking hour” studying ligand-accelerated catalysis under the guidance of Professor K. Barry Sharpless. “MIT was a great place to go to graduate school,” Dr. Bellon said. “There was so much focus on research and doing good science.”

Nonetheless, after finishing graduate school, Dr. Bellon, Vice President of Intellectual Property & Legal Affairs for Hydra Biosciences, decided to pursue a “non-traditional” career as an intellectual property (IP) attorney. She decided on this pathway partially because she had lost interest in laboratory research. Additionally, she saw how excited some of her colleagues at MIT were about chemistry and felt that she lacked the kind of excitement necessary to pursue a more traditional career in academia or chemical industry.

Many graduate students in chemistry consider careers in academia or industry as their two primary options. However, they may not realize that

there are a whole range of “non-traditional” career options available. These options include careers in law, science writing, informal science education, and consulting.

For Dr. Dana Gordon, partner at Foley Hoag, LLP, the decision to pursue a career as an attorney came at a much later point in his career, after Dr. Gordon had spent four years as a tenure-track assistant professor at Brandeis University. He decided to switch career paths once he realized that being an assistant professor required him to devote substantial amounts of time to administrative work, grant writing, and teaching, when he would rather be doing research.

“It was the rudest awakening,” Dr. Gordon said. Being a university professor requires a substantial amount of sacrifice, he said, “and I didn’t feel like I would have the sort of vibrant research program that would justify those sacrifices.”

In choosing what non-traditional career to pursue, Dr. Gordon looked to

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use his chemistry knowledge, as well as the administrative and leadership experience he had gained as a professor. “I had gone much further in my career as a scientist than most people do before they make this transition,” Dr. Gordon said, “and I wanted to go somewhere where that experience would be recognized.” Dr. Gordon considered a career in consulting, but decided that working as an attorney would allow him more opportunities to manage and lead others.

Deciding to pursue a non-traditional” career was an “incredibly difficult” decision for Dr. Gordon. Nonetheless, 13 years after having left academia Dr. Gordon enumerated several aspects of his work environment that he enjoys. In particular, he enjoys that the work occurs at a much faster pace than in academia, and that almost by definition he is working on projects that relate to cutting-edge science. “It’s not like when I was working on a ten

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Monthly Meeting

The 910th Meeting of the Northeastern Section of the American Chemical Society

Joint Meeting: Northeastern Section, ACS and the Medicinal Chemistry Group

Symposium

Emerging Treatments for CNS Disorders

Organized by the Medicinal Chemistry Group of the Northeastern Section,
American Chemical Society

Thursday – December 9, 2010

Hilton Hotel, 2 Forbes Road, Woburn, MA

3:00 pm Refreshments

3:15 pm Welcome

Raj (SB) Rajur, Program Chair; CreaGen Biosciences, Inc., Woburn, MA

3:20 pm Introductory Remarks

Norton P. Peet, Director of Chemistry, Microbiotix, Worcester, MA

3:30 pm **The Discovery of Orally Bioavailable CGRP Receptor Antagonists: From Concept to Clinical Efficacy**

Ian Bell, Merck & Co. Rahway, NJ

4:15 pm **Why all the excitement about glutamate?**

Larry Hardy, Director of Pharmacology, Sepracor Corporation, Marlborough, MA

5:00 pm **HDACs in memory and cognition: Development of isoform selective inhibitors with improved CNS drug properties?**

Edward Holson, Director of Medicinal Chemistry, Stanley Center for Psychiatric Research, The Broad Institute, Cambridge, MA

5:45 pm Social Hour

6:30 pm Dinner

7:45 pm **HDAC Inhibitors for CNS Diseases: Challenges in Selectivity and Pharmacology**

James Rusche, Senior Vice President of Research and Development, and

Vincent Jacques, Senior Director of Preclinical Development, RepliGen Corporation, Waltham, MA

Dinner reservations should be made **no later than 12:00 noon on Thursday, December 2, 2010**. Please contact Anna Singer at (phone/fax 781-272-1966) or secretary@nesacs.org. Reservations not canceled at least 24 hours in advance must be paid. Anyone who needs handicapped services/transportation, please call a few days in advance so that suitable arrangements can be made. Reservations not canceled at least 24 hours in advance must be paid. **Payment is made at the door by cash or check (no credit cards.) Members, \$28.00; Non-members, \$30.00; Retirees, \$18.00; Students, \$10.00.**

THE PUBLIC IS INVITED

Directions to Hilton Hotel

Traveling 93 North (From Boston/Logan Airport): Take Exit 36 (Montvale Ave.) Turn left off the exit. At second set of lights, turn right onto Washington St. Drive 1 mile on Washington St to the second set of lights. Turn right onto

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Abstracts and Bios

Ian M. Bell

Abstract: G-protein-coupled receptors (GPCRs) have been the focus of many successful drug discovery programs and are the targets of about one-third of all marketed pharmaceuticals. However, the identification of orally bioavailable drugs that target Family B GPCRs, for which the endogenous ligands are large peptides, has proved to be challenging. The calcitonin gene-related peptide (CGRP) receptor is a multimeric protein containing the calcitonin receptor-like receptor, a Family B GPCR. The natural ligand is the 37-amino-acid CGRP, a neuromodulator which is believed to play a key role in migraine pathogenesis. Clinical evidence for the utility of CGRP receptor antagonists for the acute treatment of migraine was initially provided with intravenously administered olcegepant. Our program to develop orally bioavailable CGRP receptor antagonists began with a benzodiazepine-containing HTS lead of micromolar potency and high molecular weight. Initial optimization of this benzodiazepine led to the identification of the advanced clinical compound telcagepant. A complementary approach to the evolution of the HTS lead provided a structurally diverse back-up compound, MK-3207. The discovery of these clinical compounds will be discussed, with an emphasis on the key challenges facing the drug discovery program and the solutions we identified.

Biography: **Dr. Bell** was educated at Cambridge University and received an M.A. in Natural Sciences and a Ph.D. in Organic Chemistry. Following post-doctoral work at the Scripps Research Institute, working in the lab of Donald Hilvert, he joined Merck Research Laboratories in 1994. He is currently a Senior Investigator in the Medicinal Chemistry Department at West Point. He has worked on a number of programs in the areas of oncology and neuroscience, most recently on CGRP receptor antagonists. *continued on page 7*

YAC: Young Ambassadors of Chemistry

Morton Z. Hoffman, Boston University

The Young Ambassadors of Chemistry (YAC) is a project of the Committee on Chemistry Education (CCE) of the International Union of Pure and Applied Chemistry (IUPAC), which is carried out in partnership with Science Across the World (SAW) <www.scienceacross.org>, a global science education exchange program that provides high-school teachers with resources to develop the scientific and communication skills of their students, and provide them with an international perspective. The aim of the YAC project is to encourage public understanding of chemistry through the organization of chemistry celebration events for young people in public locations, at which they learn how to go out and be YACs themselves. In that way, the students gain experience in being facilitators of the flow of ideas between chemists and society. YAC utilizes the “train the trainers” approach to enable the teachers to help the students communicate the benefits of chemistry.

A typical YAC event includes preparation workshops for the teachers, followed by a public activity where the students share their enthusiasm and interest with passers-by. The trained teachers carry out SAW projects, communicate with partner classrooms in other countries, and prepare students for interactions with their communities. The culminating public event, which is usually held in a public park or busy shopping mall, is where the students become YACs and present their ideas to the public.

Over the past seven years, YAC projects have been held in Taiwan, Argentina, Russia, Korea, South Africa, Mauritius, Cyprus, Philippines, and Malaysia. The 2010 YAC event was held in conjunction with the International Conference on Chemical Education (ICCE) on August 12 in Taipei, Taiwan. Twelve high-school chemistry teachers from around the island participated in a 2.5-hour workshop on the preparation and marketing of cosmetics at the Taipei International Conven-



YAC event organizers: (l-r) Lida Schoen (Netherlands), Mei-Hung Chiu (Taiwan), Erica Steenberg (South Africa)

tion Center (TICC) that was conducted by Lida Schoen (Netherlands), Erica Steenberg (South Africa), and Mei-Hung Chiu (Taiwan), after which they joined 36 high-school chemistry students in the plaza adjacent to the Taipei City Hall at the foot of the Taipei 101 Building, the second tallest in the world at a height of 1,667 ft (508 m).

Under the guidance of the teachers during the next two hours in the damp and humid climate, the students produced perfume, hair gel, shampoo, and hand lotion, created and rehearsed a television commercial of less than 30 seconds to market the line of cosmetics, and corralled passers-by for interviews, engagement about chemistry, and observation of the activities. Based on the quality of the products and the commercial, and the interactions with the public, the three best groups were identified; further recognition of the students was made in the evening at the ICCE Participants Night, where the best presentations were repeated, the students were interviewed, and their innovative YAC products were distributed. ◇

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Students of the three winning YAC groups with event organizers, teachers, and judges

Photographs (by M.Z. Hoffman)

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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

Abstracts and Bios

Continued from page 5

Larry Hardy

Abstract: Glutamate receptors are drug targets for a variety of neuropsychiatric disorders, including autism, anxiety, pain, and schizophrenia. I will discuss the basic biology behind the neurochemistry of glutamate as it relates to several of these therapeutic needs. Opportunities and challenges will be summarized briefly. Examples of efforts in this area, especially with negative allosteric modulators of mGluR5, will be included. Finally, a

Cover Photo

Continued from page 3

(l-r) Front row: Kurt Begitt (German Chemical Society), Sapna Sharma (Tufts University), Ruth Tanner (University of Massachusetts Lowell), Nina Schützenmeister (Georg-August-University, Göttingen), Markus Jegelka (University of Stuttgart), Raeanne Napoleon (Boston University), Alex Taylor (Constellation Pharmaceuticals); Second row: Morton Hoffman (Boston University), Lee Johnson (CreaGen Biosciences), Andreas Lill (Johann-Wolfgang-Goethe-University, Frankfurt am Main), Robert Lichter (Merrimack Consultants); Third row: Judith Delius (Technical University Munich), Matthias Beyer (Fraunhofer Institute for Silicate Research, Würzburg), Tim Peppel (University of Rostock), Evelyn Wuttke (University of Konstanz); Back row: Christiane Knappke (University of Cologne), Prisca Eckert (Technical University Dortmund), Johannes Wehner (Christiana-Albertina-Universität, Kiel), Kevin Stella (University of Duisburg-Essen), Sergej Toews (University of Paderborn), Christian Küchenthal (Justus-Liebig-University, Giessen). Not shown: Michael Strem (Strem Chemicals), Jörg Saborowski (Gesamtschule Rodenkirchen, Cologne), Shanshan Wang (Max Planck Institute for Coal Research, Mülheim an der Ruhr), Elizabeth Vogel Taylor (M.I.T.). ◇

novel series of potent and selective mGluR5 negative modulators recently identified through rational design will be disclosed.

Biography: Dr. Larry Hardy received his education in chemistry and biochemistry at MIT and the University of California, Berkeley. After postdoctoral training at UC San Francisco and University of Massachusetts, Worcester, Dr. Hardy was a member of the pharmacology faculty at the U. Mass. School of Medicine for nine years. He left the medical school to work in the biological screening group at ArQule from 1998 until 2002. From 2002 to 2004, Larry helped Dr. Norton Peet start a research services company (Aurigene) with laboratories in Bangalore, India. After that adventure, Dr. Hardy joined Sepracor and began doing drug discovery research in the CNS arena. Larry lives in Sturbridge with his lovely wife Suzanne Bouvier, has five sons and two grandchildren, and enjoys travel, theatre, gardening, and whistling in the dark.

Edward Holson

Abstract: Deficits in cognition and memory are associated with many disease states, including Alzheimer's disease, Rubinstein Taybi Syndrome and schizophrenia. Altered acetylation states and the effects on specific gene expression and protein regulation underlie components of CNS disorders. Hypoacetylation states are found in neurological contexts and HDACs offer an attractive target to remedy these altered acetylation states. We describe our efforts to optimize HDAC inhibitors with greater isoform selectivity, improved CNS drug properties and efficacy in mouse models of learning and memory.

Biography: Dr. Edward Holson is the Director of Medicinal Chemistry at the Stanley Center for Psychiatric Research, the Broad Institute of MIT and Harvard University. Ed completed his Ph.D. in organic chemistry at the University of Michigan at Ann Arbor in the laboratory of Dr. William Roush and worked at Merck & Co, and Infinity Pharmaceuticals prior to joining the Broad Institute. In February 2008, Ed

joined the medicinal chemistry group at the Stanley Center to design and implement strategies towards developing novel therapies in CNS-related disorders, including schizophrenia, bipolar and cognitive functional impairment. These strategies include key collaborations within the academic communities of MIT, Harvard and Massachusetts General Hospital.

James Rusche and Vincent Jacques

Abstract: Epigenetic modification of gene expression impacts fundamental neurological processes, such as cell survival from injury and consolidation of memory. Preclinical studies in behavioral and neurodegenerative disease models suggest that small molecule inhibitors of histone deacetylase enzymes (HDACi) may provide therapeutic benefit. Single gene neurodegenerative diseases represent a well-defined setting for testing HDAC inhibition as a treatment, target. A significant challenge is to find a pharmaceutically acceptable composition for chronic CNS treatment, as all previously developed HDACi were chosen for peripheral activity as anti-tumor agents. Some aspects of the HDACi chemical structure will be discussed that impact compound selectivity and tissue distribution: two important features to achieve a safe and effective treatment for CNS diseases.

Biography: Dr. James Rusche has been at RepliGen since 1996, when the company began small molecule programs. He has directed the preclinical and early clinical development of proteins, peptides, natural products, and small molecule drug candidates for CNS, inflammation, and oncology programs.

Biography: Dr. Vincent Jacques is currently Senior Director of Preclinical Development at RepliGen Corporation and has 9 years experience in R&D in the biotech industry working on magnetic imaging contrast agents and therapeutic small molecules. His responsibilities at RepliGen include medicinal chemistry, biochemical assays, *in vitro* ADME, and bioanalytical assays. ◇

The 10th Anniversary NESACS-YCC/GDCh-JCF Exchange

By Raeanne L. Napoleon, 2009-2010 NSYCC Chair, Boston University

The Northeastern Section of the ACS (NESACS), the Northeastern Section Younger Chemists Committee (NSYCC), and the NESACS Education Committee hosted a group of 13 graduate student representatives from the Young Chemists Forum (*Jungchemikerforum*, JCF) of the German Chemical Society (*Gesellschaft Deutscher Chemiker*, GDCh), a representative from the European Young Chemists Network (EYCN), Sergej Toews, a German high-school teacher, Dr. Jörg Saborowski, and the Deputy Executive Director and Director of Education and Professional Affairs, Dr. Kurt Begitt, in conjunction with the ACS National Meeting, in Boston August 21-28, 2010.

This visit began with members of NSYCC and NESACS greeting the German delegation at Logan International Airport on Saturday afternoon. The next event was a reception in honor of the Exchange hosted by the German Acting Consul General of Germany in Boston, Frau Claudia Schütt, at the Goethe-Institut in Boston's Back Bay neighborhood. After the reception the German delegation and members of NSYCC enjoyed a nice walk through the Boston Common en route to the waterfront for relaxing and socializing. The next day, Sunday, was the official start to the National ACS Meeting. In the afternoon, there was a special symposium entitled, "Connections to Germany and Europe: Education and Research Opportunities," organized by Morton Z. Hoffman (Boston University). The sponsoring technical division was the Division of Chemical Education (CHED), and it was also designated a Presidential Event. Presentations were given by Dr. Jörg Saborowski (Gesamtschule Rodenkirchen Cologne), Nina Schützenmeister (Georg-August-University Göttingen), Kevin Stella (University of Duisburg-Essen), Christian Küchenthal (Justus-Liebig-University Giessen),

Sergej Toews (University of Paderborn), and NSYCC Chair Raeanne L. Napoleon (Boston University). Immediately following the symposium, the delegation attended and presented posters at the International Activities Committee Reception for International Attendees held at the Sheraton Boston.

At 6:30 a.m. on Monday morning, the 8th Annual YCC Fun Run 5K was held at Castle Island Park in South Boston. Several members of the German delegation, as well as Raeanne Napoleon, not only participated in the run, but also survived the gale force winds that morning. The German delegation enjoyed conference activities throughout the day, and each presented posters at Sci-Mix that evening. On Tuesday, NESACS hosted an Exchange alumni luncheon. Over fifty chemists and business professionals from the past and present German Exchange Programs attended, as well as those interested in the future ACS International Exchange Program. Tuesday evening, NSYCC and national YCC hosted a networking event for younger chemists at Harpoon Brewery. The German delegation had the opportunity to socialize with many members of the NSYCC at this event. Tuesday evening concluded with the ChemLuminary Awards Reception, where everyone saw award presentations and enjoyed dancing at the Westin Copley Place.

Wednesday was both a fun-filled and relaxing day for the German delegation. Everyone, including special guest and ACS President Joseph Francisco, enjoyed a baseball game at Fenway Park (which the Red Sox won), followed by dinner and refreshments with members of NSYCC at Whiskey's in Boston's Back Bay. On Thursday, the group traveled to Newburyport to visit the research and production facilities of two smaller chemical companies, Strem Chemicals and PCI Synthesis. There was a catered lunch of Thai food at PCI Synthesis,

(Photos by Morton Z. Hoffman)



Kevin Stella (University of Duisburg-Essen) flanked (on left) by Bruce Bursten (ACS Past-President) and Robert Lichter (Merrimack Consultants)

and then the group visited a brewery in Portsmouth, watched the Blue Angels practice overhead for an upcoming air show, and moved to Salisbury Beach for some fun in the warm afternoon sun. The day concluded with a lobster and clam buffet at Seaglass Restaurant (recently voted "Best of North of Boston") beachside under a full moon.

The last full day spent together started with a morning tour of the MIT campus and Harvard chemistry labs led by Alex Taylor (Constellation Pharmaceuticals). Immediately following was some free time for lunch and shopping in Harvard Square. The Farewell Dinner was held at The Castle at Boston University that evening. The NESACS German Exchange Organizing Committee presented Dr. Begitt with a framed, antique map of Boston to thank him for his 10 years of service. He will retire from the GDCh this year, thus marking the end of his duties on the Exchange Program Committee in Germany. In addition, the German delegation presented the members of the organizing committee with some gifts of Kinder chocolate, coffee mugs, and other items. The NSYCC presented a Red Sox cap to each member of the German Delegation.

The members of the 2010 German delegation were Matthias Beyer, Fraunhofer Institute for Silicate

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YCC/GDCH-JCF

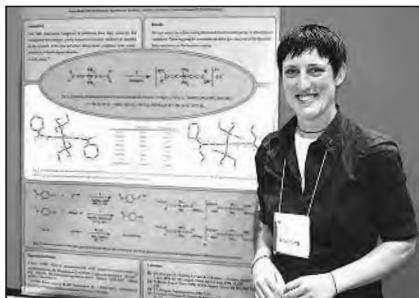
Continued from page 8



Alex Taylor (Constellation Pharmaceuticals) and Elizabeth Vogel Taylor (M.I.T.), who met for the first time on the NESACS trip to Berlin in 2005 as graduate students at Harvard and M.I.T., respectively, with their ten-week-old daughter, Beatrix.



Sapna Sharma (Tufts University) [with Kurt Begitt (GDCh)] went on the NESACS trip to Konstanz in 2006 as a graduate student at Tufts.



Evelyn Wuttke (University of Konstanz)

Research, Würzburg; Judith Delius, Technical University Munich; Priska Eckert, Technical University Dortmund; Markus Jegelka, University of Stuttgart; Christiane Knappke, University of Cologne; Christian Küchenthal, Justus-Liebig University, Giessen; Andreas Lill, Johann-Wolfgang-Goethe University, Frankfurt am Main; Tim Peppel, University of Rostock; Nina Schützenmeister, Georg-August University, Göttingen; Kevin Stella, University of Duisburg-Essen; Sergej Toews, University of Paderborn; Johannes Wehner, Christiana-Albertina

Senior Chemists – ACS Wants You!

The U.S. economy is experiencing the biggest setback since the Great Depression, and many of your colleagues in the chemical sciences are out of work or are in transition. They could certainly use your assistance as someone who has been there and done that to help them with advice and guidance.

The ACS Career Consultant Program (CCP) has been providing support to new graduates and displaced workers for over 30 years. It is staffed by qualified volunteers who give freely of their time. Although there is no compensation, ACS provides annual training for Career Consultants. Applicants to the program are vetted through the Council Committee on Economic and Professional Affairs (CEPA). The following is a list of criteria used by CEPA to assess applications for the Career Consultant program:

University, Kiel; Evelyn Wuttke, University of Konstanz; Dr. Jörg Saborowski, Gesamtschule Rodenkirchen Cologne; Dr. Kurt Begitt, GDCh. Shanshan Wang, Max Planck Institute for Coal Research, Mülheim, was unable to make the trip.

A delegation from NESACS will travel to Germany on March 20-27, 2011, to attend the *Frühjahrssymposium* in Nürnberg-Erlangen. It is anticipated that students from NESACS will also make trips to Germany in 2012 and 2014. We look forward to welcoming the JCF representatives in 2013, and again in August 2015 at the time of the next ACS national meeting in Boston, when the fifteenth anniversary of the Exchange will be celebrated.

The German Exchange Organizing committee would like to thank the sponsors again: Alfa-Aesar; A Johnson-Matthey Company; GDCh; Strem Chemicals; Creagen Bio-sciences, Inc; Merrimack Consultants, LLC; Waters; Anasazi Instruments; Sun Specialties; Interchim; The Division of Chemical Education; and NESACS. ◇

Employment Background

- work experience in chemistry or related field
- respect by colleagues – reputation for excellent work
- mentoring or advising experience
- career counseling or personnel (hiring and firing) experience
- may not be principals in, or employed by, enterprises that derive income by collecting fees from individuals for providing career counseling or job placement services
- must have degree in chemistry or related field.
- must be an ACS member in good standing.

Personal Characteristics

- personal experience with making job or career changes
- good writing and speaking skills
- good listening skills
- good telephone communication skills
- dependable, outgoing, empathetic, tactful and patient

Other

- employed and/or retired member of the ACS
- have a broad view of the business and professional dimensions of chemistry
- letters of recommendation from two current ACS members
- willingness to attend a CCP training program (possibly 2 days)

The ACS seeks to have a diverse group of chemists as consultants. Therefore, consultants are recruited from industry, academia, government, large and small organizations, all chemical specialty areas, and different work levels and positions. The ACS also seeks diversity in gender, racial, and ethnic backgrounds.

If you are interested in serving your fellow members as an ACS Career Consultant, please email Malahat Layazali <m_layazali@acs.org> or Liane Gould <l_gould@acs.org>. ◇

NESACS Golf Tournament

By Amy Tapper, NESACS Golf Co-Chair

Photos by Amy Tapper

The sixth annual NESACS golf tournament was held on June 22, 2010 at Wedgewood Pines Country Club in Stow, MA (www.wedgewoodpines.com). It was a perfect day for golf, partly sunny with moderate temperatures. This year a total of 63 golfers participated in a shot gun scramble. The scramble format, in which all hit from the position of the best previous shot, allows players of all levels to participate. This annual event is a great venue for networking, and there are players who have attended all six tournaments. The tournament began at 1 PM and was followed by dinner and an awards ceremony. Additional photos from the tournament are posted at www.nesacs.org.

First, second, and third place prizes (Wedgewood Pines pro shop gift certificates) were awarded to the teams with the lowest overall scores. There was a tie this year for first place. The first and second places were determined by the lowest score on the most difficult hole on the course. The first-place team, with a score of 60, was the Amgen team of Ryan White, David Boyle, Joe Kim, and Doug Saffran. The second-place team, with a score of 60, was the Lyophilization Services of New England team of Aimee Hodge, Damon Abernathy, Claudio Tracanna, and Andrew Morbey. The third-place team, with a score of 63, was the Genzyme team of John Green, Bennett Green, Dominic Cammarata, and Henry Darnell. In addition to the team prizes, pro shop gift certificates were given for the longest drive and the closest to the pin. The longest drive (tee shot must land in the fairway) was on the 4th hole. This year the winner for the men was Ken Nappi. The winner for the women was Donna Keith. The closest to the pin was on the par 3, 14th hole. The winner for the men was Doug Saffran, with 3' 7" from the pin, and the winner for the women was Gerri Gross, with 30' 0" from the pin.

Most importantly, NESACS would like to acknowledge all of our sponsors



The first-place Amgen team (L-R) Joe Kim, David Boyle, Ryan White, and Doug Saffran with event co-chair Harry Mandeville.



The second-place Lyophilization Services of New England team (L to R) Claudio Tracanna, Damon Abernathy, Aimee Hodge, and Andrew Morbey.

for their generous contributions: AMRI, Cambridge Major Laboratories, Lyophilization Service of New England (LSNE), IRIX Pharmaceuticals, Vertex Pharmaceuticals, Girindus, Aptuit, and PCI Synthesis. Industrial contributions to the Northeastern Section are what enable our Section to be one of the most active Sections of the American Chemical Society. To view the products and services that are available from our sponsors, please visit the NESACS website (<http://www.nesacs.org/sponsors.html>).

Although this was another successful tournament, the number of players was down by 30%. We look forward to another well-attended tournament in 2011. Information will be posted on the NESACS website in early Spring 2011. ◇

Tournament photos are posted at
www.nesacs.org



The third place Genzyme team (L to R) of John Green, Dominic Cammarata, Bennett Green, and Henry Darnell.



The longest drive man: Ken Nappi



The longest drive woman: Donna Keith.



The closest to the pin man: Doug Saffran



The closest to the pin woman: Gerri Gross

December Historical Events In Chemistry

by Leopold May, The Catholic University of America, Washington, DC

December 1, 1743

Martin H. Klaproth, who discovered cerium with J. Jacob Berzelius and William Hisinger, was born on this date. He also discovered zirconium in 1789, uranium from pitchblende in 1789, and chromium which had been discovered previously by N. L. Vauquelin in 1797.

December 3, 1886

Karl Manne Georg Siegbahn, who was a researcher in X-ray spectroscopy, was born on this date. In 1924 he was awarded the Nobel Prize in Physics for his discoveries and researching the field of X-ray spectroscopy.

December 6, 1835

One hundred and seventy-five years ago, Rudolf Fittig was born on this date. He synthesized organic compounds, *e.g.*, lactones, with B.C.G. Tollens; synthesized toluene; discovered diphenyl, phenanthrene, 1872, and coumarone, 1883.

December 7, 1810

Two hundred years ago, Theodor Schwann was born. He named and investigated pepsin, 1836, coined the word metabolism; discovered the striated muscle of the upper esophagus and the myelin sheath of peripheral axons, called Schwann cells; and was the founder of modern histology.

December 8, 1878

Eugene C. Bingham, who was born on this date, was a researcher on plastic flow and viscosity.

December 10, 1967

"Project Gasbuggy," the world's first commercial experiment with nuclear mining under the New Mexico desert, was started on this date.

December 12, 1960

Fifty years ago, it was announced at a meeting of the American Nuclear Society that the first pure compound of californium (Cf, 98) had been synthesized.

December 13, 1935

Seventy-five years ago, on this date, F. Victor Grignard died. He had developed the magnesium reagent used in organic chemistry and was awarded the Nobel Prize in 1912 for the discovery of the so-called Grignard reagent. He shared the prize with Paul Sabatier, who received it for his method of hydrogenating organic compounds in the presence of finely disintegrated metals, whereby the progress of organic chemistry has been greatly advanced in recent years.

December 16, 1929

Bruce N. Ames developed the Ames Test, an indicator of carcinogenicity of chemicals that measures the rate of mutation by a chemical in bacteria. He was born on this date.

December 17, 1908

Fifty years ago, Willard F. Libby was awarded the Nobel Prize in Chemistry for his method of using carbon-14 for age determination in archaeology, geology, geophysics, and other branches of science. He was born on this date.

December 19, 1949

Berkelium was discovered by ion-exchange chromatography at the University of California, Berkeley, on this date.

December 22, 1903

Haldan K. Hartline, who was born on this date, performed single-fiber analysis of the optic responses of the vertebrate retina. He was a researcher in night vision in humans. He shared the Nobel Prize in Physiology or Medicine in 1976 with G. Wald and R. Granit, for their discoveries concerning the primary physiological and chemical visual processes in the eye.

December 23, 1829

Paul Schützenberger, a researcher in physiological chemistry, was born on this date. He prepared cellulose

acetate in 1865 with Laurent Naudin.

December 25, 1761

In 1791, Rev. William Gregor discovered titanium. He also analyzed minerals and was born on this date.

December 25, 1904

Gerhard Herzberg, researcher on the electronic structure and geometry of molecules and free radicals using spectroscopy, was born on this date. In 1971, he received the Nobel Prize in Chemistry for his contributions to the knowledge of electronic structure and geometry of molecules, particularly free radicals.

Additional historical events can be found at Dr. May's website, <http://faculty.cua.edu/may/Chemistrycalendar.htm> ◇

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Report From Taiwan

Continued from page 2

tatives. CCE approved the minutes of its last meeting in Glasgow in August 2009 at the IUPAC General Assembly and Congress, received the March 2010 report of the CCE Chair, Peter Mahaffy, to the IUPAC Bureau, and heard reports from subcommittees.

The Subcommittee on Chemistry Education for Development reported on the "Flying Chemists Program," in which IUPAC chemistry education experts collaborate with academic institutions and governmental officials of a country to work towards the improvement of teaching and learning at primary, secondary, and tertiary levels. New program visits have been proposed to Croatia (November 2010) and Ethiopia (February 2011). The activities of the Network for Inter-Asian Chemistry Educators (NICE) were also described; its fourth symposium for the exchange of teaching strategies, materials, and research results among teachers and faculty in Korea, Japan, and Taiwan will be held in Seoul in July 2011. One goal is to include other nations in NICE. The development of a new book about Madame Curie to celebrate the 100th Anniversary of her Nobel Prize in Chemistry (as well as IYC) was also reported.

The IYC Education Subcommittee described its role in the development of activities for 2011: 1) Global Experiments on the Theme of Water; 2) Toolkits for National Chemistry Weeks; 3) Chemistry as a Cultural Enterprise. The CCE Project Group reviewed the status of current and completed projects, including those joint between CCE and other committees and divisions of IUPAC, and reported on those under consideration and projected for the future.

CCE heard reports about the status of ICCE 2010 in Taipei and the plans for ICCE 2012 (joint with ECRICE) in Rome, and received an expression of interest from a group at the University of Toronto in hosting ICCE 2014. Members of CCE were encouraged to consider organizing a future ICCE.

The national representatives sub-

Careers

Continued from page 4

step synthesis and was stuck on step five," Dr. Gordon said. Rather, he has the opportunity to work on several projects simultaneously, each of which may be at a different stage of development.

Dr. Mary Bacaj, a consultant at McKinsey and Company, concurred that one of the benefits of her work is its fast-paced nature. Part of the nature of her consulting work is that she switches projects every 2 to 3 months, usually consulting for a different company and sometimes to a totally different industry. "This makes it difficult to get bored," she said, although sometimes it is difficult to plan ahead.

Non-traditional career options generally make use of one's previous scientific training, either directly or indirectly. Dr. Bacaj explained that she uses the problem-solving skills that she learned in graduate school to help her on projects. At one time, Dr. Bacaj worked on a project for a chemical supply company. "During this project, I interviewed 40 scientists from all industries and around the globe," Dr. Bacaj said. "It really helped to be able to say, 'I'm a chemist and I understand all the terms you are using.'"

Ms. Amy Christuk, who works for Chemical Abstracts Service (CAS), received her master's degree in chemistry from Northwestern University

mitted reports that described activities planned for IYC in their countries. Members of CCE were apprised of the plans for the 43rd IUPAC Congress, July 30-August 7, 2011, in San Juan, Puerto Rico, and were urged to submit abstracts through <www.iupac2011.org> by March 31.

The next meeting of CCE will take place at the IUPAC Congress in San Juan. The 22nd ICCE (*Stimulating Reflection and Catalyzing Change*) will be held in Rome, Italy, July 15-20, 2012, in conjunction with the 11th European Conference on Research and Innovation in Chemical Education (ECRICE) <<http://www.22icce.org>>. ◇

and her MBA from Southern New Hampshire University. In her job at CAS, she uses her chemistry knowledge on a daily basis, training chemists and other researchers in SciFinder® and other CAS products. "I am the voice of my customers," she said. "I listen to what they like, and especially to what they don't like."

In general, chemists in non-traditional careers have substantially different work responsibilities than more traditional chemists do. Ms. Jennifer Lares worked as a bench chemist for a large pharmaceutical company before she decided to make a career transition. "I found the culture to be a little corporate and stressful," Ms. Lares said, as there were deadlines that she had to meet for various projects.

Now Ms. Lares is the outreach coordinator for Nova of WGBH. In this job she is responsible for coordinating outreach activities targeted both at high school students and at the general population. Ms. Lares's goal is to increase the general science literacy of the population. Her daily activities and responsibilities are substantially different from what she used to do at the pharmaceutical company. For example, Ms. Lares is responsible for coordinating "Science Cafes" in the greater Boston area, a program in which local scientists meet with the general public at various cafes and coffee houses to talk about science.

"We are increasing the science literacy of everyone and encouraging them to learn," she said.

Some chemists who decide to pursue non-traditional careers may miss various aspects of being in a lab. For example, Ms. Christuk explained that she misses the camaraderie that she had with her lab mates while working in the lab. "The thing about being at the bench is that you really get to know your lab mates," she said.

In contrast to Ms. Christuk, both Dr. Bellon and Dr. Bacaj denied missing any aspect of bench chemistry. Dr. Bacaj said, "I think a lot harder now than I ever did as a bench chemist, since things move so much faster."

Dr. Bellon added, "I don't miss it

Continued on page 13

BUSINESS DIRECTORY

Careers

Continued from page 12

[bench chemistry] at all, but I know a lot of people who do. It is hard to give up.”

When asked what advice she would give to students who are considering a career as an IP attorney, Dr. Bellon said, “Talk to as many people as possible. There are many ways to do this [pursue an alternative career].”

Dr. Bacaj gave similar advice. “Take advantage of opportunities outside of your research at your university where you can be valued as a scientist,” she said. “This could be as simple as organizing a speaker series on topics that interest you or taking a class in other disciplines.”

Additionally, people who are interested in pursuing a career in consulting will have to prepare for the “case interview,” where the interviewer presents a short business problem, and the interviewee has to explain how he or she would solve the problem. Dr. Bacaj said the case interview “can be fun, but requires preparation” to learn how to handle the situation properly.

Overall, the five chemists interviewed for this article were uniformly pleased with their career decisions and enthusiastically endorsed non-traditional career pathways. Ms. Larese said, “If someone had asked me four years ago where I see myself, I never would have imagined that I would be here.” Nonetheless,” she continued, “I am incredibly excited to be here.” ◇

Monthly Meeting

Continued from page 5

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Calendar

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

These include:

<http://chemserv.bc.edu/seminar.html>
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Dec 02

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 University of MA Lowell Inn & Conference Center, Lowell MA
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Flemming Besenbacher (Aarhus Univ.)
 Harvard, Pfizer Lecture Hall
 4:00 pm

Tom Blacklock (VP and Head of Early Portfolio Acceleration, Novartis Pharmaceuticals Corp.)
 “Why Do We Need Good Manufacturing Practices?”
 U. New Hampshire, Room NB 104 (L103)
 11:10 am

Dec 03

Sukant Tripathy Symposium
www.uml.edu/tripathysymposium (for speaker list)

U. Mass. Lowell, Cumnock Hall,
 One University Ave., Lowell
 8:15 am -4:30 pm

Dr. Andrea Pierce (Senior Field Technical Support Specialist: CEPHEID, Sunnyvale CA)
 “Microfluidics and Microelectronics Technologies for DNA Analysis”
 U.Mass. Lowell, Olney 518
 11:00 am

Dec 06

Prof. Matt LaVoie (Harvard)
 Brandeis Univ. Gerstenzang 122
 3:45 pm

Prof. Lynn Loo (Princeton Univ.)
 Tufts, Science & Technology Center (4 Colby St), Room 136,
 12:00 pm

Dec 07

Jeffrey Kelly (The Scripps Research Institute)
 U. New Hampshire, Room NB 104 (L103)
 11:10 am

Dec 13

Prof. William Jorgensen (Yale)
 “From water and molecular recognition to drug design”
 Brandeis Univ., Gerstenzang 122
 3:45 pm

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