Monthly Meeting

Joint Meeting with the Central Massachusetts Section at Sunovion Pharmaceuticals, Marlborough, MA
J. Woodland Hastings to speak on Bioluminescence

Remarks from the German Consulate In Boston

2011 Chair’s Statement
by Patrick Gordon

International Experience – Part 1
by Stefan Koenig
Remarks from the German Consulate in Boston

Greetings at the symposium on “Connections to Germany and Europe: Education and Research Opportunities,” ACS National Meeting, August 22, 2010

Claudia Schütt, Acting Consul General of Germany in Boston

Dear Dr. Hoffman, Dr. Dröscher, Distinguished Guests:

On the 10th anniversary of the Young Chemists exchange, I am honored by the opportunity to greet this Symposium as Acting Consul General of Germany in Boston. I would like to thank NESACS and Mort Hoffman in particular for the kind invitation, and congratulate both institutions on the success of their exchange program, testimonies of which you will, I believe, hear later on.

“Connections to Germany” are at the very heart of the mission of our Consulate General for New England. What might not normally be expected from a diplomatic mission is that we maintain a Scientific Department that I have the pleasure to head, and that greatly benefits from the hard work of our Scientific Officer, Dr. Peter-Paul Henze. At a scientific hotbed like Greater Boston, with our local presence we are joining forces with the German Center for Research and Innovation, the German Academic Exchange Service, the German Research Foundation, the American Friends of the Humboldt Foundation, and numerous other liaison offices based in the German House in New York and in Washington, D.C., to promote the exchange and cooperation of American and German scientists.

The sciences have always been an important part of U.S.-German relations and one of the foundations of our friendship. Since Alexander von Humboldt first met with Thomas Jefferson in 1804, countless personal contacts and cooperative endeavors among scientists of our two countries have helped create a close bond, which is still expanding. The United States remains the #1 destination for German scientists. Last year, almost 15,000 publications by American scientists in the fields of math, science, and the social sciences were co-authored with...

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Cover: January speaker Dr. J. Woodland (Woody) Hastings of Harvard University.
(Photo courtesy of Dr. Hastings)

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THE NUCLEUS

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Editor: Michael P. Filosa, Ph.D., ZINK Imaging, Inc., 16 Crosby Drive, Building 4G, Bedford, MA 01730 Email: Michael.filosa(at)zink.com; Tel: 508-843-9070

Associate Editors: Myron S. Simon, 20 Somerset Rd., W. Newton, MA 02465, Tel: 617-332-5273, Sheila Rodman, Konarka Technologies, Inc., 116 John St. Suite 12, Lowell, MA 01852 Email: srodman(at)konarka.com tel 978-569-1414, Mindy Levine, 516-697-9688 (c), mindy.levine(at)gmail.com

Assistant Editor: Stefan G. Koenig

Board of Publications: Vivian K. Walworth (Chair), Mindy Levine, Mary Mahaney

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

Advertising Manager: Vincent J. Gale, P.O. Box 1150, Marshfield, MA 02050,
Email: Manager-vincegale(at)mbo services.net; Tel: 781-837-0424

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

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

Photographers: Morton Z. Hoffman and James Phillips

Proofreaders: Donald O. Rickter, Vivian K. Walworth, Mindy Levine

Webmaster: Roy Hagen

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International Experience – Part I: Differentiate Yourself

by Stefan G. Koenig, Ph.D.

With globalization becoming a reality and competition for chemistry jobs increasing across North America, the best way to improve one’s marketability is to have an experience that is somewhat atypical. This advice is most pertinent to current undergraduate or graduate students – those who have yet to embark on a career – but might still be useful for those who have already started down a particular professional path. There can be no doubt that international experience, above all else, broadens one’s horizons and leads to a better understanding of the increasingly diverse and global chemical enterprise.

This advice is something that was much more accepted in earlier times. Prior to the conflicts of the last century, American chemists traveled to Europe, particularly Germany, for training in the continent’s centers of higher learning. For example, great chemists such as J. Willard Gibbs, Irving Langmuir, and Theodore William Richards traveled to Europe during their training. Partly as a result of the two world wars, European dominance of the scientific fields declined. This also coincided with the rise of the American university system, and resulted in many international scientists traveling to the United States. These scientists were seeking academic training that would make them more successful when they returned to their home countries. Fortunately for our economy, many of these highly skilled researchers remained in the United States, and made valuable contributions to the field of chemistry. Along the way, the vibrancy of the ‘melting pot’ culture of the United States was greatly enhanced. Those that returned to their homelands were better prepared for future chemical research due to their American experiences.

The flow of skilled immigrants to the U.S., though still active, has changed with the increased scrutiny following the events of September 11, 2001. Fewer qualified scientists come to the U.S. for training since it is now easier to find work in other developed, English-speaking countries, such as Great Britain and Australia. Moreover, many of the scientists who do come for

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1 American Chemical Enterprise: A perspective on 100 years of innovation to commemorate the centennial of the Society of Chemical Industry (American Section), Chemical Heritage Foundation, Publication No. 14, 1994

Chemical Education and Industrial Research: “Mortarboard and Lab Coat,” p. 40 – 53.
John Woodland Hastings is the Paul C. Mangelsdorf Professor of Natural Sciences in the Department of Molecular and Cellular Biology at Harvard University, where he has been since 1966. Professor Hastings received a B.A. from Swarthmore College in 1947, a Ph.D. from Princeton University in 1951 and was a postdoctoral fellow at Johns Hopkins from 1951-1953. Professor Hastings began his independent career at Northwestern University in 1953 and moved to the University of Illinois (Urbana-Champaign) in 1957, where he rose through the ranks to become a Professor of Biochemistry in 1963. He has been a visiting scientist at a number of world-class research institutions throughout his career, including the Jet Propulsion Laboratory.

Abstract

Bioluminescence is widespread phylogenetically and is unusual in that many of the different systems have originated independently in evolution, possibly 30 or more times, such that their genes have no sequence similarities, and their enzymes (luciferases) and substrates (luciferins) are different. The reactions of four systems, bacteria, coelenterates, fireflies and dinoflagellates, have been extensively characterized and are strikingly different. A common feature of all is a requirement for oxygen, indicative of similar chemical intermediates.

Only a few decades ago, bioluminescence was looked upon by many as an interesting, even fascinating, feature of Nature, another great example of the great ingenuity, power and versatility of evolution, but without any great importance in the overall scheme of life, and certainly of no practical value. Today the situation is very different. Like many biological phenomena, knowledge of genes has provided important new insights and in this case has facilitated the use of light emitting systems for analytical and reporter applications.

Bios

John Woodland Hastings is the Paul C. Mangelsdorf Professor of Natural Sciences in the Department of Molecular and Cellular Biology at Harvard University, where he has been since 1966. Professor Hastings received a B.A. from Swarthmore College in 1947, a Ph.D. from Princeton University in 1951 and was a postdoctoral fellow at Johns Hopkins from 1951-1953. Professor Hastings began his independent career at Northwestern University in 1953 and moved to the University of Illinois (Urbana-Champaign) in 1957, where he rose through the ranks to become a Professor of Biochemistry in 1963. He has been a visiting scientist at a number of world-class research institutions throughout his career, including the Jet Propulsion Laboratory.

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Connections to Chemistry
By Marietta Schwartz, NESACS Education Chair, UMass Boston

The Eleventh annual Connections to Chemistry program took place at Burlington High School (Burlington, MA) on Wednesday, October 13th, 2010. The program is aimed at connecting high school chemistry teachers with the educational resources of the American Chemical Society. Each registrant participated in two of four different workshops which included presentations on “Using SmartPens” (given by Alan Crosby, Newton South High School), a National Chemistry Week-themed workshop on “Chemistry Behind the Crime Scene” (presented by Dr. Faina Ryvkin, Emmanuel College), a pedagogical workshop on “How Science Can Inform the Art of Teaching - Helping Students to Become Better Quantitative Problem Solvers” (offered by Dr. Fred Garafalo, Mass. College of Pharmacy and Allied Health Sciences), and an ACS Scholars Program Scholarships for African American, Hispanic, and American Indian Chemical Science Students.

ACS Scholars Program
Scholarships for African American, Hispanic, and American Indian Chemical Science Students
ACS makes awards of renewable scholarships to underrepresented minority students who wish to pursue full-time study of chemistry or chemistry-related fields. Awards of up to $5,000 (subject to individual financial need and available funding) are given to qualified students with outstanding academic records. African American, Hispanic, or American Indian high school seniors, or college freshman, sophomores, or juniors who are currently pursuing or planning to pursue a college degree in the chemical sciences or chemical technology are eligible to apply. For more information, go to the ACS website <www.acs.org>, click on “Funding & Awards” and then the “ACS Scholars” link. Alternatively, send an e-mail to <scholars@acs.org> or phone toll-free 1-800-227-5558, ext. 6250. The deadline for applications is March 1, 2011. ◊

Travel Grants-in-Aid
The Education Committee has awarded a Grant-in-Aid of $350 to one undergraduate at one of the colleges and universities within the Northeastern Section to enable the student to attend the ACS National Meeting in Anaheim, California to present a paper at the Undergraduate Research Poster Session in the Division of Chemical Education. Matching funds have been committed by the institution to support the student’s travel. The recipient is also required to participate in the Northeast Student Chemistry Research Conference (NSCRC) in May 2011. The awardee, research supervisor, and the title of the paper are:

• Jennifer Bento, Simmons College (Prof. Rich Gurney), Synthesis, Characterization, and Greening of Vinylbenzyl Thymine Monomer and Vinylbenzene Thymine and Vinylpyridine Copolymer

Applications for the travel stipend are accepted from students majoring in chemistry, biochemistry, chemical engineering, or molecular biology who are in good standing with at least junior status, and are currently engaged in undergraduate research. Abstracts for the Undergraduate Research Poster Session were required to be submitted by electronic transmission to the ACS National Headquarters by November 1, 2010 (11:59 pm EST). ◊

IYC Science Café to be held at the Hyannis Golf Club
Come Celebrate International Year of Chemistry 2011 at the Cape Cod Science Café. Hosted by local ACS Members: Jennifer Maclachlan and Dr. Jack Driscoll. Sponsors include: ACS Northeastern Section, the Town of Barnstable, the Cape Cod Commission, and PID Analyzers, LLC. The topic of the Cape Cod Science Café will be Protecting the Cape Cod Water Supply. The event will be held at the Hyannis Golf Club, Route 132, Hyannis, MA on Wednesday Evening, January 26, 2011 from 6:30 pm – 9 pm. Soft drinks and light refreshments will be provided and a cash bar will be available. The keynote speaker will be from Woods Hole Oceanographic Institute. There will be additional speakers from the Barnstable County Department of Health and Environment.

Please RSVP before 1/24/2011 to Jennifer Maclachlan, Managing Director PID Analyzers, LLC. Email: pidgirl@gmail.com ◊

Announcements
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Q. Exactly, how many awards and scholarships does NESACS sponsor?

A) One  b) Two  c) Many

www.nesacs.org/awards

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Al Hazari (University of Tennessee-Knoxville), keynote speaker (at left) with Marietta Schwartz (University of Massachusetts Boston), Chair, NESACS Education Committee and event organizer. Photos by M. Z. Hoffman

Faina Ryvkin (Emmanuel College) flanked by participants in her workshop, “Chemistry Behind the Crime Scene.”

The Eleventh annual Connections to Chemistry program took place at Burlington High School (Burlington, MA) on Wednesday, October 13th, 2010. The program is aimed at connecting high school chemistry teachers with the educational resources of the American Chemical Society. Each registrant participated in two of four different workshops which included presentations on “Using SmartPens” (given by Alan Crosby, Newton South High School), a National Chemistry Week-themed workshop on “Chemistry Behind the Crime Scene” (presented by Dr. Faina Ryvkin, Emmanuel College), a pedagogical workshop on “How Science Can Inform the Art of Teaching - Helping Students to Become Better Quantitative Problem Solvers” (offered by Dr. Fred Garafalo, Mass. College of Pharmacy and Allied Health Sciences), and scholarships for African American, Hispanic, and American Indian Chemical Science Students.
From the Editor:
At the November NESACS dinner at Tufts, I was discussing with Mindy Levine various topics for IYC. We mutually agreed that a series of interviews of local chemists from around the world would be an interesting IYC addition to the Nucleus. We generated a preliminary list with a number of chemists from all over the world as potential interview candidates. When Mindy left the dinner, I then proceeded to sit next to Sergiy Kryatov of Tufts. I began to describe our project to Sergiy. He immediately nominated his colleague and fellow Ukrainian, Elena Rybak-Akimova to be interviewed. He said, “I believe she is the only woman to finish first in the Chemistry Olympiad.” She was also the Ph. D. advisor of Ivan Korendovych, another Ukrainian who was a recent chair of the NSYCC during his studies at Tufts.

Elena Rybak-Akimova
By Mindy Levine

When Professor Elena Rybak-Akimova arrived in the United States in 1993 to start post-doctoral research at the University of Kansas, she was looking primarily for an opportunity to “do some good science,” while working in the research lab of Professor Daryle H. Busch. Moreover, there were very few opportunities at that time to do scientific research in the Ukraine, partially as a result of the political instability in the region. At the same time, Professor Rybak-Akimova said, “Previously non-existent opportunities to go abroad suddenly became available,” so she and many of her Ukrainian colleagues moved to the United States.

Nearly 20 years after her move to the United States, Professor Rybak-Akimova manages an inorganic research group of graduate students, undergraduates, and post-doctoral research fellows at Tufts University. She maintains strong international ties with collaborators whom she often meets at conferences. “We do highly specialized low-temperature, stopped-flow kinetic studies,” Professor Rybak-Akimova said, “so when people are looking to do these measurements they often think of our group.”

Professor Rybak-Akimova reflected on her adjustment to life in the United States. “The striking thing was, in the chemistry lab you would feel completely at home,” Professor Rybak-Akimova said. “People are the same, chemistry research is the same.” However, once she left the research lab, “I would still have to figure out where to buy groceries and do laundry.”

In general, American students rarely travel to other countries for research or training purposes, which Professor Rybak-Akimova explains by the large number of research opportunities available in this country. “It is quite convenient to live in the United States and to speak English,” she said. “You can basically find any science or any employment that you are interested in.”

Nevertheless, Professor Rybak-Akimova strongly advocated international experiences and travel. “They [the students] would see how science can be done very differently,” Professor Rybak-Akimova said. “The system in Germany is very different from the system in the UK [United Kingdom] and from the system in the United States.”

“I think it’s just exciting to see very different cultures and very different lifestyles,” Professor Rybak-Akimova added. “If I were these students, I would travel the world.”

The award-winning Northeastern Section Younger Chemist Committee (NSYCC) of our section has been very successful in expanding the popular Connections to Chemistry program every October. Any modification of the Connections to Chemistry program should address teaching and learning needs from which our high-school teachers can benefit.

I would first like to express my sincere thanks to the members of our section for participating in the Local Section election process and in giving me your vote of confidence to lead the NESACS during 2011, the International Year of Chemistry (IYC).

Our section, with your support, will endeavor to celebrate the themes of environmental energy, materials and health in alignment with IYC.

One of my first desires is that, as a section, we make an effort to engage our high-school teachers to become more active in our section. I feel it is critical that our teachers receive support for teaching and learning of chemistry at the high-school level from our local section. To that end, I would like to see the Section expand the popular Connections to Chemistry program our section conducts every October. Any modification of the Connections to Chemistry program should address teaching and learning needs from which our high-school teachers can benefit.

The NESACS website
WWW.NESACS.org

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National Chemistry Week-2010

The Northeastern Section Celebrates Behind the Scenes with Chemistry!

By Christine Jaworek-Lopes, Emmanuel College, Department of Chemistry

In preparation for National Chemistry Week 2010, a volunteer preparation day was held at Museum of Science-Boston on Saturday, September 25, 2010. More than 30 individuals attended this event, which allowed volunteers to practice the hands-on activities and demonstrations in advance of the October celebration.

On Sunday, October 17, 2010, the Northeastern Section of the American Chemical Society sponsored a National Chemistry Week 2010 Kick-Off Event at the Museum of Science-Boston (MoS). Volunteers ensured that the more than 500 visitors to the daylong event enjoyed a number of hands-on activities. Among the highlights of the day were the two Phyllis A. Brauner Memorial lectures, presented by Dr. Bassam Shakhashiri, Professor of Chemistry at the University of Wisconsin-Madison. These captivating lectures were enjoyed by children and adults alike. Approximately 400 individuals attended these lectures.

Four hundred and ninety nine students attended the High School Science Series event at the MoS-Boston on October 21, 2010. The students were from: Abington HS, Charlestown HS, Covenant Christian Academy, Greater Egleston Comm HS, Malden HS, Maynard HS, Needham Home Schoolers, New Bedford HS, St Joseph HS, John D. O’Bryant HS, Community Charter School of Cambridge, and Brixia Academy Home Schoolers. These students participated in a number of hands-on activities and demonstrations related to the yearly theme. In addition, the students attended a lecture-demonstration on fireworks given by David Sittenfeld, MoS-Boston, and Steve Pelkey, President of Atlas Pyro.

In addition, an NCW event was held at the Boston Children’s Museum on Saturday, October 23, 2010. Approximately 700 individuals participated in NCW hands-on activities and demonstrations.

The activities and demonstrations that were performed throughout the week included: obtaining fingerprints from a glass using cocoa powder, making snow, making UV bracelets, learning about glow stick chemistry, writing secret messages using goldenrod paper and ammonia, learning about mood lipsticks, and preparing slime and flubber.

Children in grades K-12 were able to participate in the national poster competition. Congratulations to Lianna Danas from the Hellenic American Academic Academy for winning the 6th-8th grade category and Steven So from Billerica High School for winning the 9th-12th grade category. Sarah

Continued on page 17
Many forensic science movies or TV series like “CSI,” “Bones,” and “NCIS” show chemistry procedures, such as spectrophotometry, analysis of blood, DNA extraction and electrophoresis.

To celebrate National Chemistry Week (October 17-23rd 2010), this year was titled “Behind the Scenes” we decided to take a somewhat different approach. Rather than just demonstrating for the students how to extract DNA and the reasoning behind the steps involved in the extraction, a message was added to our program – the advantages of healthy nutrition. The event was organized by Dr. Nitzan Resnick, Mr. Ariel Margolis and Mr. Ed Rubin, SASSDS Board member and businessman/chemist.

The program had four goals:

1) To demonstrate that chemistry is connected to various disciplines in life, including our own food.
2) To familiarize our students once again with the steps of the scientific process.
3) To understand the steps required for DNA extraction.
4) To introduce the students to the values of fresh unprocessed food.

Students from two middle schools south of Boston – The South Area Solomon Schechter Day School (SASSDS), in Norwood MA, and the Stiar Hebrew Academy (SHAS) in Sharon, MA, gathered on Tuesday, October 19th. The students first discussed the chemistry of DNA and used hands-on 3D computational models to learn more about it (http://www.umass.edu/molvis/tutorials/dna/dnapairs.htm). They then brainstormed on steps needed to release and extract the DNA from the eukaryotic cell. The students used strawberries and extracted their DNA using everyday reagents like shampoo, salt and alcohol.

Once familiar with the procedure, the students were asked to apply the scientific process in order to answer the following question – does food processing harm the integrity of the food ingredients? In teams they came up with a hypothesis, an experimental design, and ways to analyze their data. Teams received fresh strawberries and strawberries that were processed in a variety of ways (Frozen, freeze-dried, canned, canned and cooked). They compared the quality of the DNA extracted from the different samples, using DNA length as their measurement.

Teams compared results and came to a conclusion, suggesting that the canned and the canned-boiled strawberries did not allow the extraction of full length DNA.

We are thankful to the American Chemical Society, Northeastern Section National Chemistry Week Chair, Christine Jaworek-Lopes, who gave me an incredible amount of support and a bagful of National Chemistry Week supplies to share with my “junior-chemists-in-training”. Then, my “Jiggle Gels” kit arrived from the American Chemical Society, courtesy of the Chemistry Ambassadors, two days before Jack Driscoll and I were scheduled to appear before the local afterschool program kids to celebrate National Chemistry Week. We had an abundance of chemistry-related goodies with which to share and excite the children about chemistry.

I arrived early and set up the tables with all our supplies, including safety goggles, which were of course a huge hit amongst all of the kids grades K-8 since they were “like real scientists”.

We had about 40 kids in all and they came in two rounds; each arriving looking tired and hungry after a long

Continued on page 16
The International Union of Pure and Applied Chemistry (IUPAC) is a non-governmental organization (NGO) of member countries that encompasses more than 85% of the world’s chemical sciences and industries. Formed in 1919 by industrial and academic chemists, it strives to foster worldwide communications to unite all sectors of chemistry, especially the public sector, with a common language. IUPAC receives its core financial support from subscriptions paid by its National Adhering Organizations (NAO), which are primarily national chemical societies or national academies of science; the U.S. NAO is the National Academies. Throughout the world, there are 57 NAOs and three Associate NAOs; the most recently admitted NAOs are those of Cyprus, Tunisia, Luxembourg, Malaysia, Sri Lanka, and Thailand.

IUPAC has six long-range goals:

- To provide leadership as a worldwide scientific organization that objectively addresses global issues that involve the chemical sciences.
- To facilitate the advancement of research in the chemical sciences through the tools it provides for international standardization and scientific discussion.
- To assist chemistry-related industry in its contribution to sustainable development, wealth creation, and improvement in the quality of life.
- To foster communication among individual chemists and scientific organizations, with special emphasis on the needs of chemists in developing countries.
- To utilize its global perspective and network to contribute to the enhancement of chemistry education, the career development of young scientists, and the public appreciation of chemistry.
- To broaden its international base by seeking the maximum feasible diversity of the membership of IUPAC bodies in terms of geography, gender, and age.

IUPAC works toward the validation and naming of new elements, the standardization of chemical nomenclature and terminology, analytical methods, and atomic weights, and other critically evaluated data. It is proactive in establishing a wide range of conferences and projects that are designed to promote and stimulate further developments in chemistry, and to assist in the broadening of chemistry education and the public understanding of chemistry. IUPAC has been very actively engaged in the planning for the International Year of Chemistry (IYC) in 2011. For information about IYC projects and contacts, see <http://www.chemistry2011.org/>.

The work of IUPAC is done almost entirely by volunteer scientists from many countries who serve on...
About IUPAC

Continued from page 10

committees, subcommittees, and task
groups. Its scientific work is con-
ducted largely through a formal project
system, in which proposals from
chemists worldwide are peer-reviewed
and, if meritorious, are approved and
supported. Individual and groups of
chemists are encouraged to submit pro-
posals; information and guidelines can
be found on the IUPAC website
<http://www.iupac.org/projects>

IUPAC also sponsors about 30
independently organized international
conferences on chemistry each year
around the world that focus on cutting-
edge research, including the CHEM-
RAWN (Chemical Research Applied to
World Needs) series, as well as bienni-
al conferences, such as the Interna-
tional Conference on Chemistry
Education, the “Malta” Conference on
Research and Education in the Middle
East, and its own flagship Congress.
For an up-to-date listing of IUPAC-
sponsored conferences, see <http://
www.iupac.org/indexes/conferences>

IUPAC publishes the journal Pure
and Applied Chemistry, the bimonthly
newsmagazine Chemistry International,
many books, monographs, and techni-
cal reports, and provides electronic
resources, such as databases and the
online journal Chemical Education
International. For more information,
go to
<http://www.iupac.org/publications>

The formal members of IUPAC
are the NAOs, which represent the
chemists in those countries. Individu-
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The Nucleus January 2011 11
January Historical Events in Chemistry

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

January 2, 1889
Roger Adams, a researcher in organic chemical synthesis, was born on this date. He directed 184 doctoral theses.

January 4, 1891
Henry H. Dow prepared bromine from brine on this date.

January 7, 1794
Eilhardt Mitscherlich, who did research on crystalline structure, catalysis, and benzene derivatives, was born on this date. He also discovered isomorphism.

January 9, 1868
Sören P. L. Sörensen, who was born on this date, is known as the “Father of pH.” He did research on proteins, amino acids, and enzymes.

January 10, 1923
Chemical and Engineering News was started on this day as the bimonthly News Edition of Industrial and Engineering News. It was changed to CEN in 1942 and became weekly on January 6, 1947.

January 11, 1875
Frederick M. Becket, an inventor in electrochemistry and electrometallurgy, was born on this date. He received more than one hundred patents covering a wide range of electric furnace and chemical products, notably ferro-alloys, calcium carbide, and special chromium steels.

January 12, 1912
Konrad E. Bloch, who was born on this date, was a researcher on cholesterol and fatty acid metabolism. He shared the Nobel Prize in Physiology or Medicine in 1964 with Feodor Lynen for their discoveries concerning the mechanism and regulation of cholesterol and fatty acid metabolism.

January 13, 1780
Pierre J. Robiquet, who discovered asparagine with Nicolas-Louis Vauquelin, was born on this date. He also measured the codeine content of opium.

January 14, 1851
Ludwig Claisen, who developed reactions such as the condensation of esters and the rearrangement of allyl vinyl ethers, was born on this date.

January 15, 1784
Henry Cavendish presented the quantitative composition of water before the Royal Society on this date.

January 17, 1706
Benjamin Franklin, who was born on this date, was a researcher in electricity, an inventor, a statesman, and described marsh gas to Priestley.

January 18, 1861
Hans Goldschmidt, who discovered the alumino-thermite process (Goldschmidt Process) in 1893 and patented it in 1895, was born on this date. He was interested in producing very pure metals by avoiding the use of carbon in smelting, but realized its value in welding.

January 22, 1936
Alan J. Heeger, who was born on this date, shared the Nobel Prize in Chemistry in 2000 with Alan G. MacDiarmid and Hidaki Shirakawa for their discovery and development of conductive polymers.

January 23, 1929
John C. Polanyi shared the Nobel Prize in Chemistry with Dudley R. Hershbach and Yuan T. Lee for their contributions concerning the dynamics of chemical elementary processes. He uses infrared chemiluminescence to follow excited reaction products. He was born on this date.

January 26, 1881
Claude S. Hudson, who did research in the chemistry of sugars, was born on this date.

January 27, 1865
August F. Kekulé presented his benzene structure to Société Chimique, Paris on this date.

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Prize Winning NESACS Posters from the 2010 National Chemistry Week Contest

Children in grades K-12 were able to participate in the national poster competition. Congratulations to Lianna Danas from the Hellenic American Academic Academy for winning the 6th-8th grade category (top) and Steven So from Billerica High School for winning the 9th-12th grade category (bottom).
German Consulate
Continued from page 2

German scientists. With, above all, the support of the German Academic Exchange Service, the Alexander von Humboldt Foundation, the German Research Foundation, and the German-American Fulbright Commission, over 5,000 German scholars currently work in the U.S., and the number of American and German students participating in exchanges across the Atlantic each year exceeds 8,000. I am looking forward to presentations this afternoon on the opportunities our institutions provide, and also to their presence at Booth 953 at the Exhibition.

There, you will also meet Joann Halpern of the German Center for Research and Innovation in New York. A joint initiative by the Foreign Ministry and the Federal Ministry of Education and Research, the Center in New York is designed to create synergies among the organizations I mentioned before, and to showcase German science in America. It will also offer services to companies active in research and development and thus “round out” the image of a modern, innovative Germany.

The Science Departments of the German Embassy in Washington, DC, and at the Consulates General in Boston and San Francisco are working hand-in-hand with Joann and her team to make this “one-stop-shop” for German science in America a success.

Germany strives to use its research and innovative potential to contribute, in particular, together with the U.S., to the solution of global challenges such as climate change, shrinking natural resources, health, security, and migration. The Transatlantic Climate Bridge is a living example of this endeavor, and we are very proud of our local poster-child of that collaboration, the partnership between the Fraunhofer Center for Sustainable Energy Systems and M.I.T.

Last February, Germany and the U.S. signed a bilateral umbrella agreement on Science and Technology Cooperation, further facilitating the exchange of researchers, scientific information, and research materials, and helping to resolve possible questions of intellectual property.

As has been generously acknowledged last night by ACS President Dr. Francisco and President-elect Dr. Jackson, Germany has a lot to bring to this bilateral science partnership, and we are honored by their characterization of us as “natural partners” for U.S. chemists. Germany ranked fourth in total R&D expenditures in 2008 and maintains considerable efforts even in dire budgetary times, preserving its excellent research system and its highly qualified scientific and technical workforce. We hope that this will help continuing the track record of Nobel prizes for the work of eight German researchers in the past 15 years and for 17 Max-Planck scientists since 1948.

German-Americans have made a significant contribution to the American success story. The path that Germany and the U.S. have gone together has enriched both nations. We enjoy a community based on shared values — the values of the enlightenment and the open society. The close bond between Germany and the U.S. has been demonstrated over and over again, particularly in our recent history. The U.S. provided invaluable support to Germany — the Marshall Plan and the Berlin Airlift, in particular, have made a deep impression, also emotionally, on Germans. Clearly, the United States’ unequivocal support was decisive in bringing about the reunification of Germany, the 20th anniversary of which we are celebrating this Fall. Our gratitude and remembrance for this support shall not falter.

In this spirit, I would like to thank our American friends again and wish you a very productive meeting in every sense and meaning of the word!

Comments at the Farewell Dinner, The Castle at Boston University, August 27, 2010

Peter-Paul Henze, Consul General Scientific Officer

Dear Distinguished Guests, Dear Morton:

As Scientific Officer of the Consul General of Germany in Boston, it is my distinct pleasure to bid the promising young German chemists farewell after, hopefully, a productive trip with lasting impressions.

I again applaud both chemical societies and especially Drs. Strem and Begitt for their impressive efforts to bring together their young members: To have them meet, talk, understand each other, work, and laugh together — and, hopefully, find life-long friendships. Truly, the fabric of our nations’ future partnership is made of this.

Liebe Jungchemiker, I sincerely hope that you did just that and made good use of your time here; the weather we initially had certainly helped you to stay focused! The sun has come out again and I trust that you’ve had an enjoyable outing in scenic New England and gained valuable insight from the visits to the local industry. You will now have a better understanding of Boston as a synonym for a hotbed of science and technology — and what makes it tick.

Maybe you were too busy to realize that you also have become ambassadors of Germany while you were here and we strongly hope that you will continue to serve as ambassadors of German-American understanding and cooperation.

John F. Kennedy once said, “One person can make a difference, and everybody should try.”

Now that I’ve met you, I have a hunch that you will. I wish you a safe journey back and the best of luck in your endeavors!

Thank you. ☺

What’s Yours?

DMPK Scientist,
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Process Chemist,
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Lab Instructor

Many local employers post positions on the NESACS job board.

Find yours at www.nesacs.org/jobs
Inviting Young Scientists to the 43rd IUPAC World Chemistry Congress
San Juan, Puerto Rico

The 43rd IUPAC World Chemistry Congress and 70th PR Chemistry Conference and Exhibition organized by the Colegio de Quimicos de Puerto Rico will be held from July 30 to August 7, 2011 at San Juan, Puerto Rico. The theme of the Congress is “Chemistry Bridging Innovation among the Americas and the World”. IUPAC 2011 will provide the appropriate forum to foster the bridging of innovation in Chemistry and related fields among the Americas and the rest of the World. A program including more than 35 symposia, at least seven plenary lectures offered by Chemistry Nobel Laureates, a scientific exhibition and poster sessions will be offered. Moreover, we are planning a series of social and satellite events to enhance networking and discussion opportunities in celebration of the International Year of Chemistry. Visit the Congress website at: www.iupac2011.org.

To encourage young scientists to participate in this unique congress, the organizers have established two different programs, both offering travel assistance. The first program is especially targeted to young scientists from developing and economically disadvantaged countries; the second is open to chemists from any country. Awards of up to USD 1,500.00 will be made available to qualified candidates as a contribution to the costs of their travel to attend the Congress and to meet Congress registration fees.

Applications from candidates under age 40 and less than five years of receiving the PhD degree are welcomed. Scientists from academia, government or industry may submit applications directly to the address below. Those successful shall submit an abstract of a poster or paper to be presented at the Congress. As will all other submissions for presentation at the meeting these abstracts will assigned to an appropriate area of interest.

There is no specific application form, but applicants are required to provide a:

• letter of application;
• brief CV, including a list of their publications;
• confirmation of their current status and affiliation;
• publication list (5–10 top), and the title of their abstract submission to the IUPAC 2011 Congress;
• letter of support from the appropriate Department Head, Dean, or Laboratory Supervisor.

Estimates of the economy airfare itinerary to and from the Congress should also be provided. The deadline for receipt of applications is February 28, 2011. Applications should be sent to info@iupac2011.org or restoe@iupac2011.org.
Bios
Continued from page 5

Laboratory at Cal Tech, Rockefeller University, the University of Konstanz (Germany), Sheffield University (England) and the University of Munich. Professor Hastings has won a number of awards throughout his career and was elected to the National Academy of Sciences in 2003. Research in the Hastings Laboratory is focused broadly on understanding the fundamental biochemical mechanisms governing bioluminescence and on understanding the molecular mechanisms that control circadian rhythms.

Nobuhiko Tamura is the Executive Vice President and Chief Scientific Officer of Sumovion Pharmaceuticals Inc. (formerly Sepracor Inc.) and an Executive Officer of Dainippon Sumitomo Pharma Co., Ltd. (DSP). Tamura-san was educated in Japan at Tohoku University, where he earned a master of pharmacy degree in 1982, and began working for Sumitomo Chemical immediately thereafter. Tamura-san worked as a researcher on the synthesis of novel chemical entities (NCEs) for Sumitomo for 6 years, then moved to New York to work in the business development group and serve as a representative of Sumitomo Pharmaceuticals (SP) for 5 years. Tamura-san moved back to Japan to lead a number of projects within the R&D divisions of SP and DSP from 1994 to 2007, and was appointed president of Dainippon Sumitomo Pharma America, Inc. (DSPA) in 2007. Following DSP’s acquisition of Sepracor in October 2009, Tamura-san moved into his current position, where he is responsible for guiding the overall R&D strategy of Sumovion Pharmaceuticals, which combine the former research operations of Sepracor and DSP. Most recently, Tamara-san helped guide the atypical antipsychotic lurasidone HCl (LATUDA®) through a first cycle of approval by the U.S. Food and Drug Administration, which Sumovion expects to launch in the United States in early 2011.

Differentiate Yourself
Continued from page 4

training elect to return to their country of origin, because there are more career opportunities in Asia. While the departure of a large number of highly skilled workers relieves some pressure on the job market for domestic chemists, it also affirms that much R&D labor is now being performed outside the U.S. The continuation of this trend will be problematic for future American chemists. There will always be some domestic job opportunities, but the competition for them will become ever more fierce.

In a hyper-competitive environment, differentiating oneself with superior and distinct skills is the best way to maximize opportunities. Examples of ways to obtain international experience can include participation in student exchange programs such as NESACS’ annual collaboration with the German Chemical Society (GDCh), accepting a foreign assignment with a current employer, attending an overseas conference, initiating an international collaboration, or even participating in a humanitarian effort abroad. Whatever the opportunity is, by spending time in an unfamiliar locale, one will gain substantial experience. In many industries, international experience and a global perspective are critical to establishing the skills employers look for in prospective hires: creativity, diversity of thought, and the tools required to work with individuals of varied backgrounds, interests, and abilities. Scientific disciplines in the U.S. have long benefited from large groups of talented immigrants seeking to live and work here. Now the domestic enterprise has to adapt to a situation where a greater proportion of that talent remains abroad while the requirement for a global perspective is most critical.

A move overseas brings with it challenges beyond the expected long lab hours, budgeted living, and scientific collaboration, including adapting to changes in currency, customs, food, and language. Moving overseas also helps in developing maturity, discipline, patience, and, most significantly, cross-cultural understanding. In a future article, I will describe my own experience as a post-doc at the Swiss Federal Institute of Technology, the ETH Zurich, where I had an opportunity to work with superb chemists and grow as an individual. In the meantime, though, if you are presented with an opportunity to work abroad, I would encourage you to differentiate yourself and go international!

Cape Cod Chem. Day
Continued from page 9

day of school. The older children, surprised by the room setup and the chemistry props and tools, raced to the tables thrilled by the idea of “doing a science experiment,” forgoing their snacks until we had made every last bit of bright green slime.

As the little ones came in, the older students eagerly helped their young peers who arrived in the second group. First they guided them through the “lipstick experiment” and then told them “how cool it was to make slime and how they could keep it,” and showed them how to use the dropper and how much to measure of each “chemical.” We had the children work both in partners and on their own-like real chemists; as a team and independently. The kids loved being like real chemists.

We even had the local newspaper covering the event. The reporter was impressed by the level of enthusiasm that the children were exhibiting.

We promised the kids we’d come back soon to celebrate the International Year of Chemistry and also promised the program directors that we’d come in once a quarter during International Year of Chemistry.

At parent pick-up, one of the eighth graders ran up to his mother and asked her to high-five him, and he “slimed” her. Good thing the mother was amused with a “eeoww, gross” response. He said “Mom, you don’t even understand HOW COOL this was; we did chemistry and made the slime FROM SCRATCH, using chemistry”.

This made my heart happy!
National Chem. Week
Continued from page 8
Walker from Billerica High School won our local Design a T-shirt contest.

Special thanks to the Boston Children’s Museum, Alissa Daniels, Patrick Drane, Meghan Moriarty, Museum of Science-Boston, Steve Pelkey, northeastern Section of the American Chemical Society, David Sittenfeld, Dr. Bassam Shakhashiri, and the Phyllis A. Brauner Memorial Lecture Committee.

The events would not have been possible without the help of the volunteers listed below! Individuals came from Beth Israel Deaconess Medical Center, Boston University, BU Academy, Dartmouth, Emmanuel College, Georgia State University, Gordon College, Malden High School, Merck & Company, Regis College, Schumberger, Somerville High School, Stonehill College, Suffolk University, Tufts University, University of Connecticut, West Elementary School, and Whittier Voc-Tech.


* I apologize if your name is not on this list.

2011 is the International Year of Chemistry! Activities will be held throughout the year.

Connections
Continued from page 6
Sciences) and a workshop on “Polymers in the K-12 Curriculum” (given by Dr. Al Hazuri, University of Tennessee Knoxville). Over 70 registrants attended, from high schools in four different states (Massachusetts, New Hampshire, Rhode Island, and Maine).

The participants were welcomed by Marietta Schwartz, Connections Program Chair and Chair of the NESACS Education Committee, and by Peter Nassiff, Head of the Science Department at Burlington High School. Mort Hoffman, NESACS Chair for the International Year of Chemistry, also spoke briefly.

Following the workshops and dinner, the keynote address was given by Dr. Al Hazuri, entitled “Motivate Your Students’ Molecules!” which focused on the ways in which we can motivate our students to actually learn chemistry. His address was followed by our traditional raffle of American Chemical Society items and subscriptions to the Journal of Chemical Education.

All of the participants received a one year’s subscription to ChemMatters, an award–winning magazine for high school chemistry, published by the ACS.

Chair’s Statement
Continued from page 7
active over the last decade. Our section will continue to support the committee’s programs such as the annual exchange with their German counterparts. Moreover, the leadership that emanates from the YCC is critical to the section’s future.

The section has been providing outstanding programming during National Chemistry Week and Chemists Celebrate Earth Day. Those efforts are vital as they provide the necessary outreach to K-12 children, some of whom will become scientists and engineers because of such outreach programs.

My goal is to build a bridge to support chemistry from the bottom up while sustaining and growing the programming we are known for at the professional level, such as the medicinal chemistry group and the Section’s endowed chemistry awards.

I am eager to listen to any ideas that you may have, so please do not hesitate to contact me and I look forward to your continued support in enabling our section to remain one of the most vibrant sections of the American Chemical Society.

Historical Events
Continued from page 12
January 28, 1843
Henry C. Bolton, who was a writer and bibliographer of the history of chemistry, was born on this date. He studied the action of organic acids on minerals.

January 31, 1881
Irving Langmuir was born on this date. He received the Nobel Prize in 1932 for his discoveries and investigations in surface chemistry. He introduced gas-filled tungsten lamps and the use of atomic hydrogen blowpipes for welding. He and Gilbert N. Lewis developed the electronic theory.

Additional historical events can be found at Dr. May’s website, faculty.cua.edu/may/history.htm.
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Jan 13
Bristol-Myers Squibb Lectures:
James L. Leighton (Columbia)
Martin D. Eastgate (Bristol-Myers Squibb)
MIT 6-120
4:00 pm

Jan 20
Andrei Yudin (Univ. of Toronto)
MIT 6-120
4:00 pm

Jan 25
Prof. Peter Caravan (Radiology, Harvard Medical School)
The Chemistry of Biomedical Imaging
Univ New Hampshire, L Room NB 104 (L103)
11:10 am

Jan 27
Isiah M. Warner (Louisiana State Univ.)
“NanoGUMBOS: A New Generation of Nanomaterials”
MIT 6-120
4:00 pm
Prof. Greg Rohrer (Carnegie Mellon Univ.)
Boston College, Merkert 130
4:00 pm

Invitation to attend a meeting
You are cordially invited to attend one of our upcoming Section meetings as a guest of the Section at the social hour and dinner preceding the meeting.

Please call Anna Singer at 781-272-1966, 508-653-6329 or email: secretary(at)nesacs.org by noon of the first Thursday of the month, letting her know that you are a new member. ♦

Looking for seminars in the Boston area?
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