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Chicago Section

The Chemical Bulletin

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MAY • 2011

THE ONE HUNDRETH PRESENTATION OF THE WILLARD GIBBS MEDAL (Founded by William A. Converse) to PROFESSOR ROBERT G. BERGMAN sponsored by the CHICAGO SECTION AMERICAN CHEMICAL SOCIETY FRIDAY, MAY 20, 2011

Casa Royale
783 Lee Street
Des Plaines, IL 60016
847-297-6640
Directions to Casa Royale are on page 3

RECEPTION **6:00 P.M.**
Hors-d'oeuvres and Two Complimentary Drinks

DINNER (See page 4) **7:00 P.M.**

AWARD CEREMONY **8:30 P.M.**

The Willard Gibbs Medal

Dr. Keith Kostecka, Chair
Chicago Section, ACS
The History of the Willard Gibbs Award

Introduction of the Medalist,
Dr. Charles Casey, University of Wisconsin, Gibbs Juror

The Citation (below); Presentation of the Medal

Dr. Robert G. Bergman, The Gerald E.K. Branch Distinguished Professor of Chemistry, Department of Chemistry, University of California, Berkeley, CA

(continued on page 2)

- **For significant work in physical organic chemistry and organometallic chemistry with major implications for pharmaceutical sciences and the petrochemical industry.**

- **For development of the "Bergman cyclization" of ene-diynes, which was ultimately recognized as a prototype for the first step in the mechanism of DNA-damaging by various classes of anti-tumor agents. This has led to literally hundreds of synthetic ene-diyne compounds being tested as drugs.**

- **For the discovery of the first soluble organometallic complexes that undergo intermolecular insertion of a transition metal into the carbon-hydrogen bonds of alkanes, and for pioneering the study of the mechanism of C-H bond activation at transition metal centers.**

(continued from page 1)

ACCEPTANCE ADDRESS

"Selective Stoichiometric and Catalytic Reactions in Water-Soluble Host-Guest Supramolecular Systems"

Abstract: In a collaborative study being carried out by the R. G. Bergman and K. N. Raymond research groups, several cationic organic and organometallic compounds have been shown to bind into the cavities of water-soluble chiral clusters or "nanovessels" (constructed earlier by the Raymond group) from metal salts and dicatecholate bridging ligands. Among these are reactive Ir(III) complexes that undergo Ir(III)/Ir(V) C-H oxidative addition reactions (discovered earlier by the R. G. Bergman group) when they are encapsulated in the nanovessel clusters in aqueous solution, leading to the first nanovessel intracavity C-H activation reactions. Substantial size- and shape selectivities have been observed in these reactions. Subsequently, aza-Cope and other pericyclic rearrangements have been found to proceed in the nanovessel cavities; small quantitities of the nanovessels have been found to catalyze these reactions with accelerations above 800-fold.

Nanovessels have also been found to perturb the acidities of organic bases, and the pKa-shift properties of the nanovessels have provided a way of carrying out acid-catalyzed hydrolyses in strongly basic aqueous solution. For example, the nanovessels strongly catalyze the aqueous hydrolyses of orthoformates and acetals at high pH with even larger accelerations (>3000-fold) than those seen for the aza-Cope rearrangement. The velocities of the hydrolysis reactions mirror the classic rate behavior of enzymes, including adherence to Michaelis-Menten kinetics and exhibition of competitive inhibition by strongly-binding guests. Most recently, nanovessel-catalyzed Nazarov rearrangements have been discovered, proceeding with unprecedented accelerations of up to two million, and enantioselective transformations catalyzed by chiral nanovessels have also been found.

THE MEDALIST

Robert G. Bergman was born in Chicago, Illinois, on May 23, l942. After completing his undergraduate studies in chemistry at Carleton College in l963, he received his Ph.D. at the University of Wisconsin in l966 under the direction of Jerome A. Berson. Bergman spent l966-67 as a North Atlantic Treaty Organization Fellow in Ronald Breslow's laboratories at Columbia, and following that, went to the California Institute of Technology as a Noyes Research Instructor. He was promoted to assistant professor in l969, associate professor in l971, and full professor in l973. He accepted an appointment as Professor of Chemistry at the University of California, Berkeley, in July l977, and moved his research group to Berkeley about a year later. In 2002, he was appointed Gerald E.K. Branch Distinguished Professor at Berkeley.

Bergman received a number of early career awards, including an Alfred P. Sloan Fellowship (l969) and a Camille and Henry Dreyfus Foundation Teacher-Scholar Award (l970). In l984 he was elected to membership in the National Academy of Sciences and the American Academy of Arts and Sciences. He is the second recipient of the American Chemical Society (ACS) Award in Organometallic Chemistry (l986), and in subsequent years has received additional recognition from the ACS that has included an Arthur C. Cope Scholar award, the Arthur C. Cope Award, the James Flack Norris Award in Physical Organic Chemistry, the Edgar Fahs Smith Award (Philadelphia Section) the Ira Remsen Award (Baltimore Section), the Edward Leete Award (Organic Division), the T. W. Richards Medal (Northeastern Section). He received the E.O. Lawrence Award in Chemistry from the U.S. Department of Energy as well as teaching excellence awards from both Caltech and UC Berkeley. In 2008 he was chosen to give the Royal Society Sir Edward Frankland Prize Lectureship in the United Kingdom, to be delivered in 2010. He has been invited to give a number of named lectures, which during the past few years have included the Winstein Lecture at UCLA, the Herron Lecture at Florida State University, the Beckman Scholars Lecture at the University of Florida, the Turner Lecture at Rice University and the Novartis Lecture at The Scripps Research Institute.

Bergman was trained as an organic chemist and spent the first part of his independent career studying reaction mechanisms that involve unusually reactive molecules, such as 1,3-diradicals and vinyl cations. In 1972, he discovered a transformation of ene-diynes that was later identified as a crucial DNA-cleaving reaction in several antibiotics that bind to nucleic acids, and the ene-diyne reaction is now commonly referred to as the "Bergman cyclization". In the mid-l970's, his research broadened to include organometallic chemistry, which led to contributions to the development and study of the reaction mechanisms of migratory insertion and oxidative addition reactions, the chemistry of new dinuclear complexes, the investigation of organometallic compounds having metal-oxygen and -nitrogen bonds, and the observation of organometallic reactions in supramolecular systems.

He is probably best known for his discovery of the first soluble organometallic complexes that undergo intermolecular insertion of transition metals into the carbon-hydrogen bonds of alkanes. Most recently he has collaborated with his colleague Jonathan Ellman on the application of carbon-bond activation reactions to problems in organic synthesis, and with Kenneth Raymond on the use of self-assembled clusters to mediate the reactions of carbon-bond activation reactions, catalyze sigmatropic rearrangements, and carry out acid-catalyzed reactions in basic media.

IYC 2011 – CHICAGO IS ON FACEBOOK

Go to this link to get some Chicago-flavor IYC ideas and activities -- **http://www.facebook.com/pages/International-Year-of-Chemistry-2011-Chicago/177433692295986**.

Also go to **http://www.joshkurutz.com/Site/Welcome_1.html** to find out what IYC-related activities the Chicago section is doing.

IN THIS ISSUE

"CHEM SHORTS" For Kids

The Elementary Education Committee of the Chicago Section ACS presents this column. They hope that it will reach young children and help increase their interest in science. Please print it out and pass it on to your children, grandchildren, or elementary school teachers. Teachers are encouraged to incorporate the projects in this column into their lesson plans.

Sugary Nanoscience

Kids, which will dissolve more quickly, a Tic-Tac™ mint or a mouthful of cotton candy? The answer may seem easy but why does it happen? Exploring this can also help you to understand why, in the world of nanoscience, nanoparticles are so unique. A nanometer is a billionth of a meter, or 60,000 times smaller than a human hair. To help you realize how and why properties change dramatically at the nanometer scale, we'll look at how an increase in surface area increases the reactivity of particles.

In March 2007, the *ChemShorts* article on Alka-Seltzer™ tablets (**http://chicagoacs.net/ChmShort/CS07.html#3**) established that if a tablet is divided into smaller pieces the surface area increases. In this experiment you will dissolve a sugar tablet (or cube or mint) and an equal mass of sugar crystals (or cotton candy) to see if there is a difference in how fast they dissolve. Cotton candy can represent carbon nanotubes and the Tic-Tac™ can represent a chunk of graphite for this experiment.

You need small snack-size (1 oz, 28 gm) bags of fluffy cotton candy and a small package of Tic-Tac™ mints for this demonstration. There is roughly the same amount of sugar in one Tic-Tac™ mint (about 0.5 gm) as in about 1 tablespoon of cotton candy. Devise a controlled way to measure the rate of dissolution for these two forms of sugar. As a quick test you can try it out in your mouth, but think of better ways to control the variables (how to dissolve the sugar, weigh the sugar, what liquid to use, how to measure the time, etc.).

For large materials that you can see with your eyes (larger than micrometers), the percentage of atoms at the surface is tiny compared to the total number of atoms in the material. If the pieces are continually cut, the surface area will increase but the total volume does not change.

This is significant in nanoscience where nanoparticles acquire new chemical or physical properties from bulk materials. Some properties of nanoparticles are due to the surface area of the particle. Small nanoparticles have a larger percentage of atoms on the surface. Small particles have a high surface to volume ratio.

Finer sugar grains have a vastly larger surface area than larger chunks. The larger the exposed surface, the faster the dissolution (or reaction rate) because the liquid has greater access to the sugar.

References: University of Houston College of Education, **http://atlantis.coe.uh.edu/texasipc/units/solution/sugar.pdf** and **http://www.materialsworldmodules.org/modules/intro_to_nanoscale.shtml**

Submitted by DR. KATHLEEN CARRADO GREGAR

To view all past "ChemShorts for Kids", go to: **http://www.chicagoacs.net/ChmShort/kidindex.html**

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2011 DISTINGUISHED SERVICE AWARD

With great pleasure, the Distinguished Service Award (DSA) Committee announces that Professor **David Crumrine** from Loyola University of Chicago is the 2011 awardee of the Chicago Section's DSA. Dave will be honored at the June 23 Section meeting.

The Chicago Section's e-mail address is chicagoacs@ameritech.net

DIRECTIONS TO THE MEETING

From Chicago or the west:
Take I-90 to I-294 North, exit I-294 at Touhy West and go to Mannheim Road. Turn north onto Mannheim Road (Mannheim becomes Lee Street). Casa Royale is located 2 miles north of Touhy on Lee Street.

From Wisconsin or the north:
Take I-294 South, exit onto Golf Road West (Rte 58) and go to River Road (Rte 45). Turn south onto River Road and go to Thacker/Dempster. Turn west onto Thacker/Dempster and go to Lee St./Mannheim Rd. Note: Lee St. is one-way northbound only. Go north one block to Casa Royale.

From Northern Indiana or the south:
Take I-294 North, exit I-294 at Touhy West and go to Mannheim Road. Turn north onto Mannheim Road (Mannheim becomes Lee Street). Casa Royale is located 2 miles north of Touhy on Lee Street.

Parking: Free

DINNER INFORMATION

Dinner reservations are required. To reserve your tickets, please call the Chicago Section office at 847-391-9091 or register at **http://ChicagoACS.org** by **Monday, May 16** and pay $40 at the door, or fill out the reservation form on **page 5** and mail it with your payment of $40 by **Wednesday, May 11** to the address given on the form. If you are not a member of the Chicago Local Section, you are not eligible for half price tickets for students, unemployed, or retired Chicago Section members. Tickets and nametags will be available at the door. No refunds will be made after noon on Monday, May 16, 2011.

Tables of 10 may be reserved. If you request seating for a group, please include a list of names of the people in your group and their meal choices. Tickets and nametags will be available at the door.

Seating will be available after the dinner for people not attending the dinner but interested in hearing the speaker.

THE MENU: Cream of Asparagus soup, Signature Salad pre-dressed with Raspberry Vinaigrette dressing; an entree choice of either Prime New York Strip, Baked Salmon with Dill Sauce, or Eggplant Parmigiana; Duchesse Potatoes and Green Beans Almondine; Warmed Apple Cobbler à la mode with Caramel Sauce; Wine

JOIN US AT THE FAIR!

The Chicago Section, along with the other ACS Illinois Sections, again plans to have a cooperative tent at the Illinois State Fair **August 12-21** in Springfield, IL. Our joint-sections' tent activities provide information to the public on chemistry with demos, hands-on activities, computer quizzes, posters, literature, and give-aways. They give us a chance to show the positive aspects of chemistry to many Illinois citizens and governmental leaders. **Last year, over 11,400 people visited our tent.**

We particularly need volunteers to help during the fair. Student members and other student volunteers are welcomed! If you are interested in helping us for a few hours in this fun and worthwhile outreach activity (you receive free admission to the Fair, free parking and a T-shirt if you sign up to volunteer in time!) -- call the Section office at (847) 391-9091 and go to our website at **http://chicagoacs.org/statefair/index.html** for information and to sign-in using our online volunteer scheduler.

WHEN YOU CHANGE YOUR EMAIL ADDRESS

Please let the section office know what your new email address is so that you will not miss any notes concerning issues of *The Chemical Bulletin* or other section information. Contact the office at 847-391-9091 or at **chicagoacs@ameritech.net**

AMERICAN CHEMICAL SOCIETY CHICAGO SECTION
2011 WILLARD GIBBS MEDAL AWARD PRESENTATION
Friday, May 20, 2011

You and your guest(s) are cordially invited to attend the 100th presentation of the Josiah Willard Gibbs medal to Professor Robert Bergman, The Gerald E. K. Branch Distinguished Professor of Chemistry, University of California, Berkeley, on Friday, May 20, at Casa Royale, 783 Lee Street, Des Plaines, IL 60016. A social hour begins at 6 PM. Dinner is served at 7 PM. Dr. Bergman's talk will begin at approximately 8:30 pm.

After a social hour with Hors-d'oeuvres and two Complimentary Drinks, dinner on this special occasion includes Cream of Asparagus Soup, Signature Salad Pre-Dressed with Raspberry Vinaigrette Dressing; a choice of Prime New York Strip or Baked Salmon with Dill Sauce or Eggplant Parmigiana; Duchesse Potatoes and Green Beans Almandine; and Warmed Apple Cobbler à la mode with Caramel Sauce, as well as Wine.

To reserve your tickets, please call the Chicago Section office at 847-391-9091 or register at http://ChicagoACS.org by Monday, May 16 and pay $40 at the door, or fill out the attached reservation form and mail it with your payment of $40 by Wednesday, May 11 to the address below. If you are not a member of the Chicago Local Section, you are not eligible for half price tickets for students, unemployed, or retired Chicago Section members. Tickets and nametags will be available at the door. No refunds will be made after noon on Monday, May 16, 2011.

The Gibbs Award Dinner is always a memorable occasion. Only the Nobel Prize is considered more prestigious. Please come to salute the recipient and rejoice in Dr. Bergman's achievements in and contribution to the science of Chemistry.

Margaret Stowell Levenberg
Gibbs Arrangements Committee

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2011 GIBBS DINNER RESERVATION FORM

Name_____ **Affiliation**_____

Address _____**Phone(____)**_____

Email Address_____

 # tickets for ACS members & guests ($40.00/ticket) _____

 # tickets for students, unemployed members, and retirees who are Chicago Section members ($20.00/ticket)_____
Note: Professors must make student reservations.

 # dinners:

Prime New York Strip _____

Baked Salmon with Dill Sauce _____

Eggplant Parmigiana _____

Total Enclosed $_____ **Payable at time of reservation if reservation is made by mail. Please include a list of your guests' names, affiliations and dinner selections with this form.**

Return with payment to: American Chemical Society, Gibbs Reservations
1400 Renaissance Drive, Suite 312, Park Ridge, IL 60068

SPONSORS NEEDED-- STATE FAIR CHEMISTRY TENT PROJECT

The Chicago Section, along with the other Illinois Sections of the ACS, is again planning to have an exhibitor's tent at the Illinois State Fair August 12-21. **Last year, over 11,400 people visited our tent**. The tent provides outreach to the public on chemistry though demos, hands-on activities, literature, and give-aways.

We are looking for individuals and companies to help sponsor our tent this year. In return for financial contributions, we will display your company's name at the front of the tent as a sponsor and on CDs with information given to over 350 teachers throughout the state of Illinois. **This is a great way to get your company recognized in the public and to promote chemistry.** If you are interested in making a donation to help keep this worthwhile public outreach project going strong, please call the Section office at (847) 391-9091. Thank You!

FRAN KRAVITZ
CHERLYN BRADLEY
Co-Chairs, Ad-Hoc Committee of the Illinois Sections of the ACS Cooperative State Fair Project

The mission of the Chicago Section of the ACS is to encourage the advancement of chemical sciences and their practitioners.

PROJECT SEED

Summer Research Internship Program for Economically Disadvantaged High School Students.

The ACS Project SEED summer research program opens new doors for economically disadvantaged students to experience what it is like to be a chemist. Students entering their junior or senior year in high school are given a rare chance to work alongside scientist-mentors on research projects in industrial, academic, and federal laboratories to discover new career paths as they approach critical turning points in their lives.

With guidance from mentors, they gain confidence, a solid sense of direction, and the ability to realize their own potential. For more information, visit **www.acs.org/education** and the Project SEED link under High School Programs, or contact Tracey Braun, Project SEED coordinator for the Chicago Section at **tracey.braun@abbott.com.**

THE WILLARD GIBBS AWARD

Founded by William A. Converse

The award was founded in 1910 by William Converse (1862-1940), a former chairman and secretary of the Chicago Section. The medal was named for Professor Josiah Willard Gibbs (1839-1903) of Yale University. Gibbs, whose formulation of the Phase Rule founded a new science, is considered by many to be the only American born scientist whose discoveries are as fundamental in nature as those of Newton and Galileo.

Mr. Converse supported the award personally for a number of years, and then established a fund for it in 1934 that has subsequently been supported by the Dearborn Division of W. R. Grace & Co. Considerable contributions to the award have also been made by J. Fred Wilkes and his wife. Since the sale of the Dearborn/Grace division to Betz, the BetzDearborn Foundation, located in Horsham, Pennsylvania has most generously offered to continue the historic relationship between the Section and Dearborn. This Foundation has contributed annually since the purchase toward the Willard Gibbs Medal Fund to help defray the cost of the medal and of the banquet itself-helping to make the banquet award the outstanding and gracious event that it is. We are most appreciative of their support.

The purpose of the award is "To publicly recognize eminent chemists who, through years of application and devotion, have brought to the world developments that enable everyone to live more comfortably and to understand this world better." Medalists are selected by a national jury of eminent chemists from different disciplines. The nominee must be a chemist who, because of the preeminence of his or her work in and contribution to pure or applied chemistry, is deemed worthy of special recognition.

The award consists of an eighteen-carat gold medal having, on one side, the bust of J. Willard Gibbs, for whom the medal was named. On the reverse is a laurel wreath and an inscription containing the recipient's name.

Given annually for ninety-eight years, the recipients span nearly a century of chemistry. Most of the names are familiar to chemists regardless of specialty. This fame may result from later recognition, including, in many cases, the Nobel Prize. Another reason for the familiarity of these names may be that textbooks have permanently associated many of these names with classic reactions or theories. In any case, the fame achieved by the Gibbs medalists has crossed the boundaries between chemistry specialties.

Svente Arrhenius	1911
Theodore W. Richards	1912
Leo H. Baekeland	1913
Ira Remsen	1914
Arthur A. Noyes	1915
Willis R. Whitney	1916
Edward W. Morley	1917
William M. Burton	1918
William A. Noyes	1919
F. G. Cotrell	1920
Mme. Marie Curie	1921
Julius Stieglitz	1923
Gilbert N. Lewis	1924
Moses Gomberg	1925
Sir James Colquhoun Irvine	1926
John Jacob Abel	1927
William Draper Harkins	1928
Claude Silbert Hudson	1929
Irving Langmuir	1930
Phoebus A. Levene	1931
Edward Curtis Franklin	1932
Richard Willstatter	1933
Harold Clayton Urey	1934
Charles August Kraus	1935
Roger Adams	1936
Herbert Newby McCoy	1937
Robert R. Williams	1938
Donald Dexter Van Slyke	1939
Vladimir Ipatieff	1940
Edward A. Doisy	1941
Thomas Midgley, Jr.	1942
Conrad A. Elvehjem	1943
George O. Curme, Jr.	1944
Frank C. Whitmore	1945
Linus Pauling	1946
Wendell M. Stanley	1947
Carl F. Cori	1948
Peter J. W. Debye	1949
Carl S. Marvel	1950
William Francis Giauque	1951
William C. Rose	1952
Joel H. Hildebrand	1953
Elmer K. Bolton	1954
Farrington Daniels	1955
Vincent du Vigneaud	1956
W. Albert Noyes, Jr.	1957
Willard F. Libby	1958
Hermann I. Schlesinger	1959
George B. Kistiakowsky	1960
Louis Plack Hammett	1961
Lars Onsager	1962
Paul D. Bartlett	1963
Izaak M. Kolthoff	1964
Robert S. Mulliken	1965
Glenn T. Seaborg	1966
Robert Burns Woodward	1967
Henry Eyring	1968
Gerhard Herzberg	1969
Frank H. Westheimer	1970
Henry Taube	1971
John T. Edsall	1972
Paul John Flory	1973
Har Gobind Khorana	1974
Herman F. Mark	1975
Kenneth S. Pitzer	1976
Melvin Calvin	1977
W. O. Baker	1978
E. Bright Wilson	1979
Frank Albert Cotton	1980
Bert Lester Vallee	1981
Gilbert Stork	1982
John D. Roberts	1983
Elias J. Corey	1984
Donald J. Cram	1985
Jack Halpern	1986
Allen J. Bard	1987
Rudolph A. Marcus	1988
Richard B. Bernstein	1989
Richard N. Zare	1990
Gunther Wilke	1991
Harry B. Gray	1992
Peter B. Dervan	1993
M. Frederick Hawthorne	1994
Sir John Meurig Thomas	1995
Fred Basolo	1996
Carl Djerassi	1997
Mario J. Molina	1998
Lawrence F. Dahl	1999
Nicholas J. Turro	2000
Tobin J. Marks	2001
Ralph Hirschmann	2002
John I. Brauman	2003
Ronald Breslow	2004
David A. Evans	2005
Jacqueline Barton	2006
Sylvia T. Ceyer	2007
Carolyn Bertozzi	2008
Louis Brus	2009
Maurice Brookhart	2010

CONTACT THE CHAIR

Do you have any questions, suggestions, ideas, gripes, or complaints relating to the Chicago Section? Do you want to volunteer, help out, or lend a hand with Section programs or activities? Then contact your Chair. Simply log onto the Section's Web Page at **http://chicagoacs.org**, find the green button "Contact the Chair", and send me an e-mail. If I can answer your query I will respond personally. If I can't I will forward your e-mail to someone who can, or try to provide you with a contact -- all in a timely manner. The Section belongs to you and the other 4,546 ACS members who reside in the Chicago area (northeast Illinois and northwest Indiana). Only you can make it work for you by being involved. But you can also make it fail by not being involved. I look forward to hearing from you.

KEITH KOSTECKA
CHICAGO SECTION CHAIR

SPRING COUNCIL MEETING AT THE NATIONAL ACS MEETING

The 241st National Meeting of the ACS was held in Anaheim, CA from March 27 – 31, 2011. The theme of the meeting was "Chemistry of Natural Resources." The Chicago section was fully represented at the Council meeting by Cherlyn Bradley, Charles Cannon, Mark Cesa, David Crumrine, Herb Golinkin, Russell Johnson, Fran Kravitz, Milt Levenberg, Barbara Moriarty, Stan Seelig and Susan Shih.

Finances: The Committee on Budget and Finance reported that, in spite of the economic challenges faced in 2010, the Society's operating performance held up well. The Society's total 2010 revenue ($463.7 million) was up +0.8% from 2009, and was $2.4 million higher than the 2010 budget. The Society's Net Return from Operations was $23.8 million, or $11.9 million favorable to the 2010 approved budget: this was due in large part from cost containment initiatives and lower-than-budgeted salaries and fringe benefits. The Council voted to set dues for 2012 at the fully escalated rate of $148 using a formula that accounts for inflation.

Governance: The Council selected Dennis Chamot and Marinda Li Wu as candidates for 2012 President-Elect. These two candidates, along with any candidates from petitions, will stand for election in the Fall National Election.

Meetings and Expositions: By March 30, 2011, the National Meeting had attracted 14,047 registrants as follows: Regular attendees 7,336; Students 4,682; Exhibitors 1,097; Exposition-only 599; and Guests 333.

Membership: At the close of 2010, Society membership totaled 163,111, an increase over the end of 2009. In addition, due to increased efficiencies in recruiting, the net cost of recruiting new members decreased from $122 per member in 2008 to $67 per member in 2010.

Committee on Economic and Professional Affairs: The committee continues to work towards meeting the changing employment needs of our members despite the highest unemployment rate for ACS members since 1970. The average unemployment time was reported to be 10.7 months. The career fair at the meeting had 795 job seekers, 39 employers and 182 jobs posted. Due to travel costs for both members and employers, a virtual career fair was held in November 2010 with 2513 job seekers, 26 employers and 196 jobs posted. Future virtual career fairs are planned.

Local Section Activities: The Council voted to change the name of the Northeast Oklahoma Section to the Northern Oklahoma Section; this name change more closely reflects the locations of the territories of the two Oklahoma sections.

Division Activities: The Council voted to continue for three more years the current formula for determining allotments for divisions.

Petitions: The Council received one petition for consideration, involving position statements.

If you have any questions and/or comments about the above actions, please contact me or one of your other councilors. You may contact me by email (bmoriarty@nalco.com).

BARBARA MORIARTY

In the April 2011 bulletin, the March Historical Events in History was inadvertently listed instead of the April one. We apologize for this error.

Consequently, both the April and May Historical Events are included in this issue on **pages 9-10**.

FULBRIGHT SCHOLARSHIPS

The Core Fulbright Scholar competition for 2011-2012 is now open. Over 800 grants are available for teaching, conducting research, or combining both in more than 125 countries around the globe. **The deadline is August 2**.

For information on Fulbright Scholar Awards, consult the website: **www.iie.org/cies**. If you are interested in requesting information, please write to **scholars@iie.org**.

FIND OUT MORE ABOUT THE GLOBAL CELEBRATION OF IYC-2011

Visit the global IYC website **www.chemistry2011.org**, the primary source of information on the IYC, created and maintained by the International Union of Pure and Applied Chemistry (IUPAC) with the guidance and sponsorship of the United Nations Education, Scientific and Cultural Organization (UNESCO).

APRIL HISTORICAL EVENTS IN CHEMISTRY

April 2, 1953 Francis H. C. Crick and James D. Watson mailed a 900-word article on the structure of deoxyribonucleic acid (DNA) to Nature.

April 5, 1956 Marshall Gates & G. Tschudi announced the synthesis of morphine.

April 6, 1863 James Walker, a researcher on hydrolysis, ionization constants, and amphoteric electrolytes with organic compounds, was born.

April 8, 1911 Melvin Calvin, who received the Nobel Prize in Chemistry in1961 for his research in photosynthesis, was born.

April 10, 1863 Paul Louis Toussaint Héroult, who discovered the electrolytic aluminium process in the same year that Charles Martin Hall discovered the same process for isolating aluminum, called the Hall-Heroult process, was born. He also invented the electric arc furnace for steel in 1900, which replaced some giant smelters for the production of a variety of steels.

April 14, 1927 Alan MacDiarmid, who is a researcher on the synthesis of conductive polymers, was. In 2000, he shared the Nobel Prize in Chemistry with Alan J. Heeger and Hideki Shirakawa for the discovery and development of conductive polymers.

April 15, 1861 Ernest Solvay received his first patent entitled "Industrial Production of Sodium Carbonate by Means of Marine Salt, Ammonia, & Carbon Dioxide.

April 15, 1961 Carol W. Greider, who shared the Nobel Prize in Physiology or Medicine in 2009 with Elizabeth H. Blackburn and Jack W. Szostak for the discovery of how chromosomes are protected by telomeres and the enzyme telomerase, was born.

April 16, 1728 Joseph Black, who developed the concept of latent heat and laid the foundation for modern quantitative analysis, was born.

April 20, 1912 Gertrude E. Perlmann, who did research in protein chemistry, was born. She received the Garvan Medal in 1965.

April 21, 1774 Jean-Baptiste Biot, who discovered optical activity, was born.

April 22, 2007 Earth Day is now celebrated worldwide on this day; but, the first Earth Day was founded by Sen. Gaylord Nelson, Father of Earth Day and organized by Denis Hayes on April 21, 1970.

April 22, 1919 Donald J. Cram, a researcher in application of stereochemical techniques to organic reaction mechanism, was born. He invented carceplexes or guest molecules completely encapsulated by a host. He synthesized a variety of host-guest complexes including crown ether complexes and shared the Nobel Prize in 1987 with C. J. Pedersen and J-M. P. Lehn for their development and use of molecules with structure-specific interactions of high selectivity.

April 23, 1917 Rohm & Haas Co. was incorporated on this date.

April 27, 1880 Charles James, who devised crystallization methods for separating the rare earth elements, was born on this day.

MAY HISTORICAL EVENTS IN CHEMISTRY

May 4, 1844 One of the inventors of the Atwater-Rosa-Benedict respiration calorimeter, Wilbur O. Atwater was born. He established the first agricultural experimental station in the United States at Wesleyan College and determined the chemical composition and nutritive values of fish and animal tissues.

May 5, 1811 John W. Draper, who was a pioneer in photography and improved on Daguerre's process, was born. He was the first ACS president.

May 10, 1830 François M. Raoult, who discovered the law (Raoult's Law) that the vapor pressure of a solution is proportional to the number of molecules per unit in the solution, was born.

(continued on page 10)

(continued from page 9)

May 12, 1803 Justus von Liebig, who is known as the "Father of Agricultural Chemistry", was born. He perfected methods for quantitative organic analysis; divided foods into carbohydrates, fats, and protein; and invented the Liebig condenser.

May 14, 1853 Gail Borden applied for a patent on commercial condensed milk.

May 17, 1836 Joseph N. Lockyer, who discovered helium in the sun, was born. Pierre J. C. Janssen simultaneously observed this.

May 18, 1889 Thomas Midgley, Jr., who introduced tetraethyllead as an anti-knock agent in gasoline and researched organic chlorofluorides as refrigerants, was born.

May 19, 1914 Max F. Perutz, who studied structure of hemoproteins using x-ray diffraction, was born. He shared the Nobel Prize (1962) with John C. Kendrew for studies of the structure of globular proteins.

May 21, 1936 Günter Blobel, who received the Nobel Prize in Physiology or Medicine in 1999 for discovery that proteins have intrinsic signals that govern their transport and location in the cell, was born.

May 22, 1927 George A. Olah, a researcher in carbocations and their role in chemical reactions of hydrocarbons, was born. He received the Nobel Prize in 1994 for his contribution to carbocation chemistry.

May 24, 1686 Gabriel D. Fahrenheit, who improved thermometers by using mercury and invented the Fahrenheit temperature scale, was born.

May 29, 1781 Henri Braconnot, who isolated glucose from plant material such as sawdust, linen, or bark by boiling in acid, was born. He also prepared "xyloidine", a precursor for plastics, by treating starch, sawdust, and cotton with nitric acid.

LEOPOLD MAY
Professor Emeritus of Chemistry
The Catholic University of America
Washington, DC
Additional historical events can be found at Dr. May's website, **http://faculty.cua.edu/may/Chemistrycalendar.htm**

LECTURER POSITION IN CHEMISTRY

The Chemistry Division at Illinois Institute of Technology (IIT) seeks candidates for a full-time lecturer position starting August 2011. Applicants must have a Ph.D. in Chemistry. Experience with instrument maintenance and organic chemistry lab teaching is highly desirable. Primary responsibilities include oversight and maintenance of chemistry teaching laboratory facilities and instruments, design and operation of undergraduate organic chemistry laboratory courses, supervision and training of graduate teaching assistants for organic laboratory courses and instruments. Additional responsibility is to teach undergraduate level chemistry courses, including General Chemistry. Applicants should send a cover letter, a curriculum vitae, a statement of teaching philosophy, and have three letters of reference sent to **chemistry_search@iit.edu** or as a hard copy to Professor Adam Hock, Department of Biological, Chemical and Physical Sciences, Illinois Institute of Technology, Chicago, IL 60616. Review of applications will start immediately and continue until the position is filled. IIT is an equal opportunity/affirmative action employer. Women and Minorities are strongly encouraged to apply.

JOINT GREEN CHEMISTRY CONFERENCE IN 2011

To provide greater access to highly valuable exchanges of information, research, and commercialization processes in the green chemistry and engineering fields, two international conferences will unite in June. **The 15th Annual Green Chemistry & Engineering Conference will be held in concert with the 5th International Conference on Green and Sustainable Chemistry, June 21-23, 2011, in Washington, DC**.

Scientific researchers, government and industry leaders from all over the world will come together in Washington, DC to catalyze green chemistry as the solution to global challenges. One location, three days, over 20 technical sessions, plus the Green Expo, "Green Chemistry Live," and student workshop and outreach activities! Visit the conference website, **http://acswebcontent.acs.org/gcande/**, for more details.

FREE MIDDLE SCHOOL SCIENCE TEACHING RESOURCE FROM ACS

The Education Division of the American Chemical Society has developed a new middle school chemistry resource called *Middle School Chemistry: Big Ideas about the Very Small.* This six chapter resource is available for free at **http://middleschoolchemistry.com** and can serve as either a stand-alone chemistry unit or as a supplement to any middle school science curriculum.

Middle School Chemistry uses a hands-on inquiry approach, along with specially designed molecular model animations, to take students from concrete experiences to an understanding of the abstract world of atoms and molecules. Please share this free resource developed by your professional organization with the middle school teachers you know.

FREE T-SHIRTS

The Hospitality Committee gives one T-shirt at each monthly dinner meeting. The shirt has **CHICAgO** spelled out using the periodic table. So come to a monthly meeting and maybe you'll get one!

WCC COLUMN

Members of the Chicago Section's Women Chemists Committee (WCC) are developing outreach plans for Chicago Section members and the community. These plans include a column in *The Chemical Bulletin* covering topics such as networking, career development, and vignettes of women in chemistry. This month's topic is about **Astrid Phillips**.

A Chemistry Degree in Post-War Germany
by Astrid Phillips

There are some lucky students whose education is paid for by their fathers. I planned to be one of them. My father had put my older sister through medical school and was ready for me. Unfortunately, Herr Hitler aggravated the Russians, and they overran Germany.

My father had the choice of leaving everything he had -- house, job and bank account -- and bringing us to safety or running the risk of death at the hands of the Russians. He chose the first of these two options. We arrived in the western part of Germany with our lives and the clothes on our backs. My father was 56 when he had to try to build up a career again. That meant I had to go to college on a shoe string. There was no choice of colleges, so I went to the nearest one where I could commute to class while living at home. Every morning, I took a bus to the railroad station, caught the 6 a.m. train for a 90 minute ride to the city, and boarded a subway for the nearest stop to the university, which was a further 5 minute walk. Evenings I reversed these steps. At home, my parents were having marital difficulties so I often had to serve as a peacemaker instead of attending to my studies. But to paraphrase Sarah Palin -- the difference between a determined German girl and a pit bull is only lipstick, and I needed all the determination I had.

In the chemistry course, we had to buy all our own glassware and chemicals, so I occasionally worked at student jobs. I finally completed all the requirements and took my final exams which in Germany are all orals. The examiner in physics was someone I had befriended in the cafeteria, so that wasn't too scary, and I passed physics easily. Then I had to face two chemistry professors; one in organic and another in inorganic who was the head of the Institute. I stood in great awe of him and was very nervous. I fell apart completely and confessed that my sister had given me a sedative for my nervous condition, Tourette syndrome. The professors were horrified. They passed me, but advised me not to pursue graduate work. I ignored their advice and enrolled in a southern university in Germany. There the male students wanted to know what I was doing there taking jobs from them instead of being home having babies. Once a professor began his lecture with the words "gentlemen ", and noticing me said, "Miss Holtz, this lecture is over your head. I give you five minutes to leave". I told him I preferred to stay.

At the end of the semester, orals were given and all the students who had come from another university failed. At this point I had had enough. I married, came to North America and, to my surprise, found an abundance of job opportunities. I worked in industry by day and taught laboratories at a university in the evening -- altogether a satisfying ending for my story.

CATALYSIS CLUB OF CHICAGO'S 2011 HERMAN PINES AWARD

Professor **Jingguang Chen** (Claire D. LeClaire Professor at the University of Delaware) is the recipient of Catalysis Club of Chicago's 2011 Herman Pines Award. The award is presented annually to honor an individual who has made significant contribution to catalysis in either fundamental research or industrial processes. The award includes a plaque, an honorarium of $1,000 and travel reimbursement as a plenary speaker at 2011 Catalysis Club of Chicago Spring Symposium. The award will be presented during the symposium at the BP Research Center (Naperville, IL) on May 19, 2011.

Professor Jingguang Chen is a world leader in surface science studies of carbide and bimetallic catalysts and their industrial applications. He has made advances in closing the long standing, well-known materials and pressure gaps in heterogeneous catalysis that are essential to convert fundamental surface science studies into industrial practice. This has been achieved by a unique combination of surface science, theoretical modeling, catalysis and in-situ reactor studies leading to the development of novel concepts and catalytic materials for a wide range of chemical reactions. In addition, Prof. Chen has excelled in a variety of leadership roles to advance surface science and catalysis. He has published over 200 papers in various catalysis and surface science journals and written critical reviews for several leading review journals, including *Chemical Reviews* and *Surface Science* Reports. He is the inventor or co-inventor of 16 U.S. patents. As an indication of his high visibility, he has given over two hundred invited and keynote lectures.

SECTION MEETING DATES 2011

Thursday, June 23
Friday, September 23
Friday, October 14
Thursday, November 17
Friday, December 9

CULTIVATING CHEMISTRY AT THE CROSSROADS OF AMERICA

The **42nd Central Regional Meeting of the American Chemical Society** will be **June 8–10, 2011** at the Indianapolis University-Purdue University Indianapolis (IUPUI) University Place Conference Center, Indianapolis, Indiana. Advance registration ends May 20.

Symposia topics include:

Agrochemicals: Systems Biology, Natural Products, Flavors, Foods and Nutrition

Analytical: Bioanalytical, Mass Spec-trometry, Imaging, Chemometrics, Forensic Chemistry

C**olloidal and Surface Chemistry:** Functional nanoscale materials

Environmental: Chemistry of the Great Lakes, Sustainability

Education: Digital Resources, Organizing Coursework, Research and Practice, Curricular Reforms

Inorganic: Organo-metallics, Transition Metals, Bio-Inorganic

Medicinal: Peptides, Lead Generation, Neuroscience, Molecular Imaging, Third World

Medicine Organic: Technology Enabled Organic Synthesis

Physical: QM Methods, Computer-Aided Drug Design, Nanotechnology, Lipid and Protein Dynamics

Polymer: Biotech Applications, Green Polymers and Devices, Optical and Nano-composite materials Small Business: Stories of Success, Best Practices, Advanced Materials Other Conference Highlights:

42nd Central Regional Awards Reception and Dinner

Speaker: Joseph S. Francisco, 2010 President of the American Chemical Society, William E. Moore Distinguished Professor-Physical Chemistry, Purdue University

Title: Sustaining the Chemical Enterprise Beyond the International Year of Chemistry

Be sure to take advantage of this unique opportunity to meet the past President of the ACS! The Regional awards will be presented and an elegant buffet dinner will be served by the University Place Conference Center and Hotel.

Plenary lectures highlighting the _**Inter-national Year of Chemistry** themes:

Dawn Shiang Associate Director, Sustainable Technologies & Innovation Sourcing
The Dow Chemical Company

John C. Lechleiter Chairman, President and Chief Executive Officer
Eli Lilly and Company

Michael A. Evans Founder, President and Chief Executive Officer
A**IT Laboratories**

Plus…

- **Teacher** and **Career Development** Workshops
- **Poster Sessions** Featuring the **Ram Brewery's** "Molecular Malt"
- **Undergraduate** Research Symposia
- -**Exposition** showcasing vendors' latest products and materials -Tour of Indianapolis' **Museum of Art Science Laboratory**
- **Women Chemists Committee** luncheon featuring Madeleine Jacobs, CEO of ACS
- **Cultivating Connections** Networking Event with live entertainment
- **Younger Chemists Committee/Student Affiliates** Luncheon featuring **Brian Fahie**, Senior Director, Bulk Analytical R & D, Eli Lilly and Company

Consult **http://cerm_regional.sites.acs.org/** for the most up-to-date information.

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CALENDAR

May 12: Chicago Section ACS Board Meeting, 1400 Renaissance Dr., Suite 312, Park Ridge, IL 60068; 847-391-9091.

May 19: The Catalysis Club of Chicago will host its 2011 Spring Symposium at the BP Research Center in Naperville, IL. For further information visit **http://www.cmt.anl.gov/CCC/**. See article on page 11 in this issue.

May 20: Chicago Section ACS Gibbs Award Banquet and Lecture. The dinner reservation coupon is on page 5 in this issue. The Gibbs Medalist is Robert G. Bergman, UC Berkeley.

June 8-10: 42nd Central Regional ACS Meeting (CERM 2011), IUPUI, University Place Conference Center, Indianapolis, Indiana. For additional information, visit **http://cerm_regional.sites.acs.org/**.

June 16: Chicago Section ACS Board Meeting, 1400 Renaissance Dr., Suite 312, Park Ridge, IL 60068; 847-391-9091.

June 21-23: The ACS Green Chemistry Institute's joint event: 15th Annual Green Chemistry & Engineering Conference and 5th International Conference on Green and Sustainable Chemistry, Washington, D.C. Visit **www.gcande.org** to learn more about this premiere event. Also, see article on page 10 of this issue.

June 23: Chicago Section ACS Distinguished Service Award Meeting; 50 & 60-year members honored. The after-dinner speaker is Adrian Whitty, Boston University.

August 4: Chicago Section ACS Board Meeting, 1400 Renaissance Dr., Suite 312, Park Ridge, IL 60068; 847-391-9091.

August 12-21: ACS Illinois Sections' cooperative tent project at the Illinois State Fair in Springfield. For further information on this fun and worthwhile outreach activity, contact the section office at 847-391-9091. Also, visit website **http://chicagoacs.org/statefair/index.html**

August 28-September 1: ACS National Meeting in Denver, CO.

October 19-22: Joint Midwest/Great Lakes Regional Meeting (MWRM/GLRM), St. Louis, MO. For further information, go to **http://mwrm2011.org/**

REGISTER ONLINE for Chicago Section monthly meetings www.ChicagoACS.org

DEADLINES FOR CHEMICAL BULLETIN

Please submit all *Chemical Bulletin* copy to the editor before the deadlines listed below for each issue. Articles can be emailed to the editor, Cherlyn Bradley, cbrad1027@aol.com. Please submit your articles as a Word doc, docx, txt, or rft file. Any photos should be jpg, tif, pdf, Photo Shop, or InDesign files.

Since we like the Bulletin to be as timely as possible, we need the lead time indicated. You can help by early planning and submission of your information or articles.

2011 Issue	Deadline
September	July 15
October	September 2
November	September 30
December	October 21

ACS MOBILE WINS TWO PROSE AWARDS

ACS Mobile received the PROSE Award for the "Best New eProduct in Physical Sciences and Mathematics," and "Best New eProduct/Innovation in ePublishing" from the Professional and Scholarly Publishing Division of the Association of American Publishers. The awards acknowledge publishing achievements across the sciences, medicine and humanities.

ACS Mobile is an application for the iPad, iPhone and iPod Touch that allows you to stay current with the latest articles ASAP from ACS journals in a single, searchable index. It also features the Latest News from *C&EN*, making time away from your desk more productive than ever. For more information about the application visit **www.acsmobile.org**.

NOTICE TO ILLINOIS TEACHERS

The Chicago Section ACS is an ISBE provider for professional development units for Illinois teachers. Teachers who register for this month's meeting will have the opportunity to earn CPDU's.

ADVERTISING INDEX