

Two Recipients of ACS MARM Awards for Teaching



**Dr. David P.
Brown**

**MARM E. Emmet
Reid Award for
Outstanding
Teacher at a
Small College**



**Mr. Steven M.
Borneman**

**2014 ACS Division
of Chemical
Education Middle
Atlantic Region
Award for
Excellence in
High School
Teaching**

*See articles on pages 5
and 6.*

THIS MONTH IN CHEMICAL HISTORY

Harold Goldwhite, California State University, Los Angeles • hgoldwh@calstatela.edu

In my last column I discussed the career of Lennard-Jones, the father of computational chemistry, who was knighted for distinguished service to Great Britain during World War II. This combination of scientist and public servant led me to my bookshelves, for it struck a chord. And sure enough there the book was: "Statesmen of Science" by J. G. Crowther, published in 1965. This book covers in some detail the accomplishments in science and government of nine British men (no women, alas) whose careers span the period from the beginning of the 19th. century to the middle of the 20th. I will get to one of these, who was a significant contributor to chemistry, in a later column but meanwhile let me give you an overview of Crowther whose career and writings play an important role in the popularization of science.

Crowther's archives are at the University of Sussex Library in the U.K. Some of what follows is based on the on-line introduction to the archive, which comprises 300 boxes of papers! James Gerald Crowther (1899 – 1983) attended Bradford Grammar School and won a scholarship to Trinity College, Cambridge to study physics and mathematics – but World War I intervened. He served as a researcher on anti-aircraft gunnery and though he did take up his scholarship after the war, he never completed a degree. He turned to schoolteaching, and his background in both science and its practical applications in wartime made him a useful advisor to publishers and a popular speaker on science and politics.

In 1928 he suggested to C. P. Scott, the Editor of the Manchester Guardian, that his newspaper should create the position of Science Correspondent – a first in British journalism. Scott agreed and appointed Crowther who rapidly made it his business to make contact with leading scientific figures in Britain and beyond. His columns on science were popular in every sense, and he began to write popular science books. Early titles include "An Outline of the Universe" (1931) and "The ABC of Chemistry" (1932).

Crowther was an enthusiast for the social and scientific changes in what was then the relatively new U.S.S.R. He visited several times in the early 1930s and later wrote a book on "The Social Relations of Science" (1941) conveying his views at that time that science could best flourish in a planned socialist society – a view shared by several distinguished British scientists of that period including J. D. Bernal, Joseph Needham, and P. M. S. Blackett.

During World War II Crowther worked with the British Council that became one of the precursors of UNESCO. The Council also worked to help refugee scholars from Europe find academic posts in the United Kingdom. Crowther's political views led to clashes with the establishment, and after the war the Council was superseded by the Royal Society as the primary source of scientific advice to the government. Crowther continued to write and lecture on the relationships between science and society – but no longer for the Manchester Guardian. He believed that capitalism was inimical to science; a radical view that attracted some, but repelled others. He never lost his enthusiasm for the U.S.S.R.

Crowther was very productive. In addition to hundreds of articles his book titles include, in addition to the three already mentioned, "Six Great Scientists: Copernicus, Galileo, Newton, Darwin, Marie Curie, and Einstein"; "Francis Bacon: the first statesman of science"; "Six great inventors: Watt, Stevenson, Edison, Marconi, the Wright Brothers, and Whittle"; "Science in Modern Society"; "The Cavendish Laboratory 1874 – 1974"; "Soviet Science"; "A Short History of Science"; "Scientific Types"; and the list goes on!

In 2006 University College London hosted a one-day symposium to explore the legacy of Crowther's 50 year career in science journalism and popular science writing. Nowadays we are exposed to science programs on television like NOVA or Cosmos, and most newspapers and magazines either have science correspondents or draw on press agency reports of scientific developments. And it all started with J. G. Crowther.

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Chemical Marketing & Economics Group

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**Deadline for items to be included
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The Indicator is
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Two Award Recipients

DR. DAVID P. BROWN

Dr. David P. Brown is the recipient of the E. Emmet Reid Award in Chemistry Teaching at Small Colleges in the ACS Middle Atlantic Region. This award recognizes and encourages high quality teaching and research. Dr. Brown is an Associate Professor of Chemistry at St. John's University, Queens, NY.

Dr. David Brown studied at the University of the West Indies for his bachelor's degree in chemistry. The recipient of a Robert Marshak Graduate Fellowship, he earned his master's and doctoral degrees in chemistry at the City University of New York, CCNY. In 1994, Dr. Brown accepted his first professional teaching assignment at Saint Peter's College, NJ. Four years later, he applied to St. John's University for a one-year position with the possibility of a permanent appointment and the chance to conduct funded research. Dr. Brown secured the temporary and permanent assignments.

Dr. Brown's students talk about the unbridled enthusiasm he brings to his subject. As quoted from the St. John's University website, "I've never had a teacher more passionate about his field and about teaching than Dr. Brown," said Frank Gentile '16Pharm.D. "The greatest lesson I've learned from him is that a little bit of effort goes a long way - in chemistry and in life." Similar to other pharmacy majors, Gentile fulfills many of his chemistry requirements in St. John's College. The Student Government presented Dr. Brown with the 2011-12 John W. Dobbins Professor of the Year Award.

Dr. Brown has developed a research program that involves undergraduate students. His research focuses on the design and synthesis of novel compounds as biological agents that target cancer cells. Most of his publications and presentations have at least one undergraduate student co-author. This program has inspired many student researchers. While working in his lab, the students learn a series of synthetic organic techniques not taught in class.

Dr. Brown developed a new sequence of Organic Chemistry classes for the chemistry majors and the students in the Honors Program at St. John's. This class provides the students with an opportunity for advanced experimental learning that approaches organic chemistry from a modern perspective and actively engages the students in the classroom and the laboratory. He also coordinates the chemistry sequence for the pharmacy majors. The pharmacy students take three semesters of general and organic chemistry instead of the usual four semesters. In order to carry out this sequence, Dr. Brown re-worked the entire syllabus and developed the syllabi for these classes. He works with the adjunct faculty teaching the classes, to keep them on track and to make sure that the students have a uniform course experience.

Additionally, Dr. Brown is an excellent mentor and teacher for minority students. He finds time to mentor high school students in his laboratory and research group, in an ACS program called Project SEED. In 2003, he received the ACS Commitment and Service Award for his dedication to the Project SEED program.

Many of Dr. Brown's students have been inspired to enter graduate school and to pursue a Ph.D. in chemistry. His students have studied at Temple University, the University of Rhode Island, and the University of Maryland, Baltimore County. Other students graduating from his laboratory have gone into industry and have started successful careers at places such as Firmenich, Forest Laboratories, PepsiCo, and the Food and Drug Administration.

Dr. Brown's insight into teaching, his work with the students in the laboratory, and his passion for organic chemistry is an inspiration to all. Because of his publication record, quality teaching, and research originality he was selected five times by the Department Chair and the Dean of St. John's College to receive the Faculty Recognition Award. He consistently receives rave reviews from his students and colleagues.

Congratulations Dr. Brown!

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MR. STEVEN M. BORNEMAN

Mr. Steven M. Borneman is the recipient of the 2014 ACS Division of Chemical Education Middle Atlantic Region Award for Excellence in High School Teaching. It was presented to Steven on April 26 at an award ceremony at the Marriott Hotel in Glassboro, NJ. The purpose of the award is to recognize and encourage outstanding teaching of high school chemistry in the Middle Atlantic Region of the ACS. He was nominated for the award by Stephen Radice, chair of the Nichols Foundation Chemistry Teacher award committee. Steven Borneman received the ACS New York Section's Nichols Foundation Chemistry High School Teacher of Excellence Award in 2009.

Steven received his B.S. in chemistry, a M.A.T in chemistry and a M.S. in chemistry from Binghamton University. Steven is teaching at Byram Hills High School in Armonk, New York. Prior to this, he taught in the Chenango Forks School District as a high school chemistry teacher and 8th grade physical science teacher. While he was at Binghamton University he worked as an adjunct instructor, a teacher assistant for the department of chemistry and a research assistant. At the high school, Steven has taught AP Chemistry, Regents chemistry, SAT II Level chemistry and Science Research Program.

Steven demonstrates continued commitment and determination to inspire students of all learning levels to love and learn chemistry. Steven's devotion to inspiring students is evident in his classroom teaching style, along with the numerous programs and projects that he has developed to engage students in the challenging subject of chemistry. Steven believes that all chemistry lessons should be real, fun, exciting and challenging. His curriculum centers on "Shock Factors", or discrepant events, that engage and inspire students to want to learn more. An example of these demonstrations include placing a test tube filled with hot melted paraffin wax into a beaker of ice water and seeing a flame shoot out to the ceiling, and demonstrating bonding principles by bending a trickle of water with a balloon. Steven also utilizes inquiry labs and group learning sessions. He works very hard to challenge his chemistry students while still preserving the fun of science. This lesson structure is evident by his "Go Do It" labs which are featured on his TV show "Chem Quest" that is shown on Bobcat TV, the Byram Hills public television station.

Steven challenges and inspires students by involving them in various projects. One such project is the "Ghosts of Chemistry Past". Each student selects an influential chemist of the past, creates a tombstone that includes a detailed epitaph and delivers a presentation (dressed as the chemist they researched) that emphasizes scientific contributions. The tombstones created by the students are presented to the entire school in a hallway called the "graveyard of chemistry past."

Steven successfully started a Chemistry Lab and Teaching Assistant program in his school. This course gives high level students the responsibility of developing lesson plans, giving in-class support to struggling students and developing labs. This serves the purpose of allowing students to achieve a deeper understanding of chemistry concepts.

Although this award is for High School teaching, Steven also works to inspire elementary aged students into the world of science. Steven developed 5th grade science night in which students are invited to the high school to perform hands on science experiments which include electricity, Alchemy, bottle rockets and fingerprints. In Steven's own words "it is never too early to initiate a student's curiosity in chemistry"

Debra Cayea, Science Department Chairperson at Byram Hills High School writes "Mr. Borneman models how science is fun and he extends himself and expertise well beyond his high school classroom. He is sure to share his contagious excitement and knowledge of chemistry with all his students and offers his expertise and guidance to other staff members including mentoring less experienced teachers."

One of Steven's students writes: "There is only one reason that I have chosen to pursue chemistry: Mr. Borneman. He has an uncanny way to make chemistry not only intelligible but also fun and exciting. Mr. Borneman instills an insatiable thirst for knowledge in chemistry that keeps me continually digging deeper."

Congratulations, Steven!

THE COLORFUL TALE OF JOB JONES AND HIS NOTEBOOK

Dr. Kevin Olsen, Montclair State University

Job Jones was a student in Medford, New Jersey, in the 1760s. His notebook in which he recorded lessons on mathematics and other subjects would have been unremarkable but for two things. First, it was preserved and is now in the collection of the Peachfield Museum and secondly, the pages are decorated with vibrant and colorful ink drawings.

As a student, Jones would have had access to both regular writing inks and colored inks. But where did they come from? Oil paints and other fine arts materials have been the subject of intense academic research for many decades. The inks used to produce the illuminated manuscripts of the Middle Ages have also been intensely studied. But surprisingly little has been written about colored inks available after the middle ages.

Most inks have four basic components. The color and opacity are provided by the pigments. Pigments are defined as insoluble materials while “dyes” are defined as soluble materials. Resins bind the components into film that can bind to the page. Solvents make it a flowing liquid, and a number of additives modify the ink’s physical properties thus making it suited to a particular application. Historically there were only a limited number of additives but modern printing inks can contain antifoaming agents, pH modifiers, biocides, wetting agents, and many more.

For most of western history the most common writing ink was the black colored mixture known as iron gall ink. Its use dates to at least the 3rd century AD but there are earlier references to this material, one of the first descriptions comes from the Roman naturalist Pliny the Elder (23 AD - 79 AD).



At this point it is worth pausing to explain that a “gall” is an external and abnormal plant growth usually caused by insect damage. They can form on leaves, stems, flowers, or buds. Damages caused by burrowing insects or their salivary secretions cause the plant to increase its production of growth hormones. The end result is a knobby structure known as a gall. Because galls are rich in tannins they provided a convenient source of useful chemicals.

The Romans knew that galls could be used to identify verdigris $\text{Cu}(\text{CH}_3\text{COO})_2 \cdot 2\text{Cu}(\text{OH})_2$. This was a highly prized green pigment used in leather processing. Naturally there was a cheap imitation, copperas, or $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ (this material is one of several that are sometimes referred to as vitriol). A piece of papyrus was soaked in a solution made by steeping galls. Then it was dipped into the verdigris. If the pigment was either faked or adulterated, the copperas turned the papyrus black.

A few centuries later, this chemical reaction became the basis of a widely used ink. Galls are rich in gallotannic acid. When mixed with water, the ester linkages are broken to produce gallic acid. The addition of vitriol (iron (II) sulfate) produces the dark color due the reaction of the iron and the three hydroxyl groups of gallic acid along with the carboxyl group. The resulting three-dimensional structure is colorless. Electron transfer in the presence of oxygen is gives the complex its dark color (see <http://irongallink.org>). Other iron salts were also used but vitriol was the most common. Gum Arabic was added to the iron gall ink. Gum Arabic, or acacia gum, is made from the hardened sap of the acacia tree.

Although gum Arabic is widely used as a binder, in the case of iron gall inks, it is technically speaking, a suspension agent. It keeps the particles from settling out too quickly. It should also be noted that there are several types of vitriol, white vitriol (zinc sulfate), green vitriol (iron (II) sulfate), and blue vitriol (copper (II) sulfate).

The color of the iron gall ink reflects its composition. Brownish inks have too much iron (II) relative to the gallic acid. Gallic acid has reducing properties and thus can affect the ratio of iron (II) and iron (III). Iron (III) produces a darker ink than iron (II). These dark black inks were also far more destructive. While easier to read, they often began to eat away at the underlying paper. One mechanism has been the acidic hydrolysis and oxidation catalysed by free iron(II). Other mechanisms involve the paper being directly attacked by the residual

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THE COLORFUL TALE OF JOB JONES AND HIS NOTEBOOK

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acids from making the ink. This phenomena has stimulated considerable research into ink and paper recipes in hopes that archivists and art conservators will be able to save countless historical documents. (The interested reader should consult: Rouchon-Quillet *et al*, The impact of gallic acid on iron gall ink corrosion, *Applied Physics A*, July 2004, pp 389-392.)



How the galls were prepared also had an effect on the resulting ink. Boiling crushed or ground galls increased the yield of gallotannic acid. This could also be increased by the use of beer, wine, vinegar, or hydrochloric acid. Fermenting the galls in water allowed mold to convert the glucose in the gallotannic acid to a gallic acid

To slow the growth of bacteria and mold, vinegar, alcohol, or alum could be added, though brandy was also used as a biocide. Another reason to add alum to inks was to serve as a chelating agent, thus increasing viscosity. The galls and other ingredients might also be mixed dry for easier transportation (what was known as a "traveling ink") and mixed with water as needed.

Making inks was among the many duties of the colonial housewife and the surviving recipes appear to date from the Elizabethan era. One directed the maker to:

"Take four ounces of gum arabick, beat small, two ounces of gall beat gross. One ounce of copperas, and a quart of the commings off strong ale. Put all these together and stirr them 3 or 4 times a day--about 14 dayes then strein it through a cloth."

It is clear that the recipe calls for enough time for fermentation. The use of ale in this recipe might serve two purposes, enhance the extraction of gallotannic acid and serve as a biocide.

Readers of *The Indicator* who are familiar with western Morris County will know there is a Copperas Mountain in Rockaway Township. An iron mine in this mountain was first excavated sometime before 1812 and is mentioned in both the 1874 and 1910 reports of the New Jersey Geological Survey. The ore from this mine was used for both copperas and paints.

Enough of this black-and-white, where did colored inks come from?

After mixing the gallic acid extract with the iron (II) sulfate and adding some gum Arabic, naturally occurring dyes might be added to give a deeper color. However the really intense colors such as those used in the Job Jones notebook come from other processes.

The colors seen in the notebook are primarily reds, yellows, and a few light greens. When mixing inks of these colors it was not necessary to use galls or copperas.

An intense red color can be obtained from flowering trees of the genus *Caesalpinia*. Sappanwood (*C. sappan*) is an Asian variety of this tree and brazilwood (*C. echinata*) is it new world counterpart. It grew abundantly in what is today Brazil and commercial exploitation began shortly after 1500. A recipe from 1596 calls for an ink made from quicklime

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(CaO), rainwater, Brasil dye, gum Arabic, and cherrywood gum. Because of the heat released when CaO and water are mixed, the instructions call for this to be done the day before the other ingredients are added. The mixture is strained through cloth before use. There are several hydroxyl groups on the dyes produced from both species of tree, so the quicklime may have something to do with neutralizing these acidic groups.

Another recipe using Brazilwood dating from sometime in the 1600s to 1700s, calls for lye (NaOH and KOH) made from the ashes of an oak, alum, and powdered eggshells. The same sources explain that a red ink may be made from cochineal, lye, and alum. Cochineal is a natural red dye made from the bodies of female insects of the species *Dactylopius*. The insects are native to the new world and are commonly found on pear cacti. It was originally made by the Aztecs and imported to Spain beginning in the 1500s.



There were also natural sources for green dyes. The buckthorn berry (*Rhamnus sp.*) was first crushed to extract the juice, which was then allowed to sit in the sun. The juice was mixed with alum and placed in a glass container to sit in the sun for three to four days with occasional stirring. The ink could then be used, although lye and gum could also be added later if it dried out. It is not clear why the mixture had to sit in the sun or how critical it was to add the lye and the gum. Other berries commonly used for inks were huckleberries, raspberries, pokeberries, and cherries.

Many modern recipes for making inks from berries recommend adding acetic acid as a biocide and also as a "binder." Gum Arabic would be a better binder and Professor Simeen Sattar of Bard College suggested instead that acetic acid hydrolyzed the coloring agents that may be covalently bound to glucose.

There were many inorganic green pigments that were widely used by painters and the number increased dramatically after the isolation of elemental chromium in 1797. Prior to that time many chromium-based pigments were red. The greens in the Job Jones notebook may have been copper based but this will not be determined without subjecting the pages to spectrographic analysis.

One green pigment that certainly would have been available in the colony of New Jersey is green earth. Green earth pigment is prepared from one of two clay minerals, celadonite, which is found in the fractures of volcanic rocks, and glauconite, which originates in the marine environment. There are large deposits of the latter mineral in New Jersey (see "Seashores, Soil Chemistry, and Hadrosaurs, Or how the need for a good soil conditioner lead to the discovery of New Jersey's State Dinosaur." *The Indicator*, November 2005).



Green earth had been used as a pigment since ancient times and by the Native Americans. Its main structural unit is a layer of octahedrally coordinated cations (Al, Fe(II), Fe(III), Mg) sandwiched between two layers of tetrahedral silicates. There is no copper or chromium in green earth, the ratio of the different oxidation states of Fe(II) and Fe(III) are thought to be responsible for the wavelengths of light that the pigment absorbs. Green earth has a strong "body" when used in watercolors but is semi-transparent in oil-based paints.

It is not know whether this pigment was used in the production of inks during the colonial era. If it was, the ink was probably formulated from water, alum, gum Arabic, and the finely ground mineral.

There are a number of yellows in the notebook and there are both organic and inorganic sources for this color. Both saffron (*Crocus savaus*) and fustic (*Chlorophora tinctoria*) were used in watercolor paints. Chlorophora tinctoria is a new world plant native to the West Indies and Central America. It was imported into Europe beginning in the early 1600s. Saffron yellow is thin and transparent. It was widely used for tinting prints and maps in the 1600s and 1700s.

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During the 1600s and 1700s the most important organic yellow pigments were members of a group collectively known as "pink." In this case, the word refers to a coloring agent and not to a shade of color that is light red. There were numerous botanical sources including unripened buckthorn berries, the weld plant (or Dyer's Weed), or the broom plant. Broom was also referred to as the Common Green Weed but also as the Dyer's Weed. All of these were mixed with chalk or alum as a mordant and were not true lake dyes.

The word mordant comes from an old French word meaning "to bite." A mordant forms a coordination complex with the dye that allows it to bind to the substrate. A lake pigment is created instead by precipitating an alkaline form of the dyestuff on a metallic salt.



Instructions from the 1600s for making yellow dye from green weed call for soaking the plant in warm water until the bark and leaves can be easily stripped off by hand. The water is stained through a cloth and the plant is discarded. The water is then reheated and the mordant is added. Chalk or powdered eggshells are recommended. The water is heated again until the liquid begins to thicken at which time a material called "ielleyd" is added. The meaning of this word appears lost to history (it is not found in the *Oxford English*

Dictionary) but it appears to be some sort of flocculating agent because the color is now part of a scum floating on the liquid surface. It could then be scooped up. However it the colorist had no ielleyd on hand, no matter, because most of the better quality dye would have settled to the bottom of the vessel. It had to be separated by filtration and dried in an oven.

Another source of yellow was the bark of the America oak. Dyes made of this material were first imported into Great Britain shortly before the American Revolution. It was reported to be a "warm rich yellow." A mordant was used with this material but historical sources also described it as a lake pigment.

The bright colors of the notebook would not have been made with copperas but it should be noted that a yellow dye from berries could be converted to a brown by the use of copperas and lye instead of alum as the mordant.

The organic yellows described above would certainly have available to Job Jones in the 1760s. Inorganic yellows based on lead or tin would have been available but some of the more lead-based intense yellows familiar to a later generation of artists would not be available until the end of the 1700s. Lead antimonate (or Naples Yellow) was widely known but not produced on a commercial scale until 1766. It was in fact one of the first commercially manufactured colors.

The next steps into the investigation of this colorful notebook would be to use some form of non-destructive spectroscopy to inspect the pages and identify the coloring agents. We do not have this type of equipment at Montclair State and anyone who does is invited to contact the author.

Most readers of *The Indicator* are most familiar with inks as the permanent way to write in laboratory notebooks. The FDA, EPA, New Jersey DEP, and other regulatory agencies generally insist on pens for record keeping. However, this practice was anticipated as early as 1431 when the Frenchman Jehan LeBegue wrote the following about his recipe for iron gall ink:

"And note, that ink made with wine is good for writing books upon the sciences, because, when books are written with it, the letters do not fade, and can hardly be scraped out or discharged from parchment or paper. But if they are written with ink made with water, it is not so, for they can easily be scraped out, and it may happen that the letters written with it will fade."

Much of the material in this essay came from the booklet, *Medieval Manuscripts, Some Ink and Pigment Recipes*, published by the Special Collections Conservation Unit of the Yale University Library.

New York Meetings

www.newyorkacs.org

NEW YORK SECTION BOARD MEETING DATES FOR 2014

The dates for the Board Meetings of the ACS New York Section for 2014 were chosen and approved at the September 2013 Board Meeting. The meetings are open meetings – all are welcome. If non board members would like to attend the meeting, please let the New York Section office know by emailing Mrs. Marilyn Jespersen at njesper1@optonline.net or calling the office at (516) 883-7510.

The 2014 Board Meetings will be held on the following Fridays at 6:00 PM at the College of Mount Saint Vincent, Benedicts (Founder's Hall), Riverdale, NY. Dr. Pamela K. Kerrigan will chair the meetings.

Friday, June 13

Friday September 19

Friday November 21

More information will be posted in future issues of the Indicator and on the New York website at <http://www.NewYorkACS.org>.



ORGANIC TOPICAL GROUP – JOINT MEETING WITH THE NEW YORK ACADEMY of SCIENCES CHEMICAL BIOLOGY DISCUSSION GROUP

Chemical Biology Discussion Group Year-End Symposium

Organizers: Brent R. Stockwell, PhD
Columbia University

Jennifer Henry, PhD
The New York Academy of
Sciences

Keynote Speaker: Michael Marletta, PhD
The Scripps Research
Institute

The Chemical Biology Discussion Group fosters interactions among local-area laboratories working in chemical biology and features forefront research in chemical biology to the wider community. The annual year-end symposium features distinguished

keynote speaker Professor Michael Marletta of the Scripps Research Institute, and six shorter, cutting-edge talks by graduate students and postdoctoral fellows selected from participating NYC-area institutions.

Poster Competition: Call for Abstracts

Submissions are invited for a poster competition. All abstracts will be reviewed, and six will be selected for a brief oral presentation. For complete submission instructions, email CBDG@nyas.org with 'Poster Information' in the subject line. The deadline for poster abstract submission is Friday, May 9, and selected poster and oral presenters will be notified by May 23.

Date: Tuesday, June 3, 2014

Time: 9:30 AM – 2:30 PM

Lunch included

Place: New York Academy of Sciences
7 World Trade Center
250 Greenwich Street – 40th Floor
New York, NY 10007

Cost: This event is FREE for ACS and NYAS members. Please select the appropriate non-member Registration Category and use the Priority Code ACS. Non-members may attend for a fee of \$30, or \$15 for students and post-docs.

For more information and to register for the event, go to:

www.nyas.org/CBDGYearEnd2014

To become a Member of the Academy, visit www.nyas.org/benefits



CHEMICAL MARKETING & ECONOMICS GROUP

Annual Biotech Update

Host: Dr. Paul Pospisil
Senior Client Partner
Korn/Ferry International

Date: Thursday, June 5, 2014

Place: Yale Club of NY

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WILLIAM H. NICHOLS MEDAL AWARD FOR 2014

The William H. Nichols Medal Award for 2014 was presented to Dr. Amos B. Smith, III of The University of Pennsylvania on March 28, at an award dinner at the Crown Plaza Hotel, White Plains, NY. Dr. Smith received the Nichols gold Medal for "Outstanding Contributions to Synthetic Organic Chemistry." In attendance were 280 people including industrial chemists, students and faculty from New York Section colleges and universities.

The William H. Nichols Distinguished Symposium that preceded the award dinner, was titled "New Strategies and Tactics for Complex Molecule Synthesis" and featured internationally known speakers: Dr. Karl J. Hales (Queen's University Belfast); Dr. Yoshito Kishi (Harvard University), Dr. John I. Wood (Baylor University), and Dr. Smith who gave the Award Lecture titled "Evolution of Anion Relay Chemistry (ARC): Design, Synthesis and Validation." Dr. Paris Svoronos, Chair-elect of the New York Section, emceed the symposium, introducing each speaker. The Nichols Distinguished Symposium was enjoyed by all attendees, most of whom attended the social hour and the award dinner that followed.

At the award dinner, Dr. Pamela K. Kerrigan, 2014 Chair of the ACS New York Section, welcomed the guests and told the History of the Nichols Medal. Dr. William F. Carroll, Chair of the ACS Board of Directors, brought greetings and congratulations from the American Chemical Society. Dr. Carl R. Johnson of the Wayne State University

introduced his good friend and colleague, Amos Smith. Chair Kerrigan then awarded the gold medal, identical bronze medal and \$5000 to Dr. Smith, who was accompanied by his wife, Janet, son Matthew and daughter Kathryn. The Medalist then happily met with students and posed for pictures with them.

Members of the Nichols family also enjoyed this special event. The New York Section was honored to have as guests: Mr. C. Walter Nichols III (great grandson of Dr. William Nichols); Mrs. Helga Nichols; Mr. C. Walter Nichols IV, Mrs. Sandra Nash (great, great grandson and granddaughter); as well as Gardner and Whitney Nash (two great, great, great grandchildren). It is exciting and truly a great pleasure to have three generations of the Nichols family present.

The Nichols Medal Award was established in 1902 by Dr. William H. Nichols to honor a chemical scientist for outstanding original research and was first awarded in 1903. Dr. Nichols, a charter member of the American Chemical Society and its president in 1918 and 1919, maintained a deep commitment to research and development and to the importance of supporting science education and students of chemistry. Since its inception, through an endowment fund, the New York Section administers the award. It has been perpetuated by the generosity of Dr. Nichols, his family and the Nichols Foundation, Inc. The William H. Nichols Medal is the first award in chemistry of the American Chemical Society.

The Nichols Medal Award celebration in 2015 will be held on March 13 at the Crowne Plaza Hotel.



Dr. Pamela Kerrigan Presenting the Nichols Medal to Dr. Amos Smith III.



Proud Smith Family: Dr. Amos Smith with his wife Janet and son Matthew and daughter Kathryn.



Medalist and the Nichols Family: Mr. C. Walter Nichols III, Dr. Amos Smith III, Mrs. Sandy Nichols Nash, Whitney Nash, Mrs. Helga Nichols, Gardner Nichols, Mr. C. Walter Nichols IV.



Speakers Enjoying the Reception: Dr. Carl Johnson (Introducer), and Symposium Presenters: Dr. Karl Hale, Dr. Amos Smith, Dr. John Wood and Dr. Yoshito Kishi.



Nichols Symposium and Dinner Participants: Dr. Yoshito Kishi, Dr. Paris Svoronos (2014 New York Section ACS Chair Elect), Dr. Karl Hale, Dr. Amos Smith III, Dr. John Wood, Dr. Carl Johnson, Dr. William Carroll (Chair ACS Board of Directors), Dr. Pamela Kerrigan (2014 New York Section ACS Chair)



Queensborough Community College students met with Dr. Smith.



Dr. Soraya Svoronos, Medalist Dr. Amos Smith III, and Chair Elect Dr. Paris Svoronos.



Over 270 scientists attended the symposium and dinner.

(Photos courtesy of Jordan Matter and Neil Jespersen.)

NEW YORK SECTION 50 AND 60 YEAR MEMBERS

The New York Section Board would like to congratulate our members that have reached 50 and 60 years of service! This milestone was celebrated by a luncheon at Koenig's Restaurant, Floral Park, NY on Saturday, May 18, 2014. The event was organized by co-chairs Frank Romano and Ralph Stephani.

60 Year Members

Dr. Carl J. Abraham	Dr. Yoshiyuki Okamoto
Dr. George Baum	Dr. Thomas Bradley
Dr. Ernest Rodman	Reddy
Birnbaum	Dr. Donald Rivin
Dr. Donald Bruce	Mr. George E. Salsler
Borders	Mr. Harold G Weinreb
Dr. Claude V. Greco	Dr. Shu-Lung Wang
Dr. Francis Johnson	Mr. Vincent Francis
Dr. David Charles	Dagostino
Mauzerall	

50 Year Members

Mr. Kenneth Stephen	Dr. Gary L. Hickernell
Albert	Mr. Robert E. Lippman
Mr. John M. Alexander	Dr. Antonio Locopo
Mr. Peter S.	Dr. Philip Henry Mark
Blumenstein	Mr. Michael Murphy
Dr. Yung Yee Chu	Dr. Elliot Redalieu
Mr. Richard John	Dr. Patricia Ann
Delasi	Redden
Dr. Paul Dreizen	Dr. Sanford Slae
Dr. Grover Louis	Mr. Richard Joseph
Farrar	Stanley
Dr. Evangelos John	Mr. Charles H. Taylor
Gizis	Dr. Thomas J. Venanzi



EMPLOYMENT AND PROFESSIONAL RELATIONS COMMITTEE OF THE NEW YORK SECTION

To Human Resources Departments in Industry and Academia

The Employment and Professional Relations Committee maintains a roster of candidates who are ACS members seeking a position in the New York metropolitan area. If you have job openings and would like qualified candidates to contact you, please send a brief job description and educational/experience background required to hessytaft@hotmail.com.

Candidates from our roster who meet the requirements you describe will be asked to contact you.



WESTCHESTER CHEMICAL SOCIETY

The seminar scheduled for April 24, 2014 had to be cancelled because of scheduling problems. It has been rescheduled for the first week of October, 2014 (the exact date to be determined). It is:

Special Seminar – “Micro-Tools to Study Single-Cell Immunology”

Speaker: Qing Song
Department of Chemical and Biomolecular Engineering
Polytechnic Institute of
New York University

Date: TBD (Early October, 2014)

Times: Refreshments 5:30 PM
Lecture 6:00 PM

Place: Westchester Community College
Gateway Building, Room 110
75 Grasslands Road
Valhalla, NY

Cost: Free and Open to the Public

Further Information: Paul Dillon

PaulWDillon2@hotmail.com
(914) 393-6940

*** Additional Lectures ***

Special Seminar – TBD

Speaker: TBD

Date: TBD (Early November, 2014)

Special Seminar – “What’s Beyond the Lithium-Ion Battery”

Speaker: Lin-Feng Li, Ph.D.
Bettergy Corp.
Peekskill, NY

Date: TBD (Early December, 2014)

Times: Refreshments 5:30 PM
Lecture 6:00 PM

Place: Westchester Community College
Gateway Building, Room 110
75 Grasslands Road
Valhalla, NY

Cost: Free and Open to the Public

Further Information: Paul Dillon

PaulWDillon2@hotmail.com
(914) 393-6940

North Jersey Chair's Summary for 2013

NJACS is an effective organization, bringing value to its membership through the tireless efforts of a large number of dedicated volunteers. Some of the highlights of 2013 are summarized below in bullet form:

- o Our very success led us to consider whether there was more we could do with fresh insights. Thus, we sponsored an ACS facilitated 2 day strategy session which we considered the issues facing our section, our mission, and concrete steps we could take to enhance our creation of value to our members and our local community. The process started with a survey of our membership as a reality check that we were focusing on the correct issues. Twelve of our members drawn from our executive committee as well as topical group chairs, participated in the entire two-day meeting and at the end, we created a mission statement, a set of goals and an action plan.
 - Mission: To advance the broader chemistry enterprise and its practitioners for the benefit of our communities.
 - Goal 1: Double the number of people actively involved in section leadership.
 - Goal 2: Stabilize within 2 yrs, the number of members in the North Jersey Section. Increase membership by 10% over the next 5 years.
 - Goal 3: Become a key resource for career information & guidance to students, the unemployed and working professionals.
 - Goal 4: Promote the public recognition and appreciation of chemists and chemistry by increasing participation in outreach programs and activities through a larger pool of leaders and volunteers.
 - A concrete action plan is in place and is being followed up.
- o A new website that is easier to maintain was launched this Spring: www.NJACS.org
- o Job losses continue in North Jersey as a result of the downsizing of large pharma in our area. Our career consultants have reached out to companies experiencing downsizing, continued their participation in topical group meetings and university sponsored career programs and have established a program, in keeping with our strategic plan, to reach out to students in local colleges and universities to develop realistic job searching tools. In addition, they continue their monthly work sessions with interested job seekers at Students 2 Science.
- o Students 2 Science continues to attract attention as a unique and effective venue to acquaint disadvantaged middle school students with the potential of careers in science by bringing them together in a laboratory setting with volunteer mentors, many of whom are drawn from the ranks of ACS members. During the 2012-2013 academic year, 58 schools, 1880 students and a remarkable 250 volunteers of whom approx. 150 are ACS members, participated.
- o Our five very successful and active topical groups held 23 meetings, and 3 symposia. These were well attended and supported in part by vendor donations in recognition of the size and quality of the audience. Two of these meetings were held in conjunction with the NJACS Ex committee meetings, to facilitate interaction between the section leadership and its members.
- o Each May, we host a dinner to recognize our 50- and 60-year members as well as other local award winners. Remarkably, there were 31 50-year members and 26 60-year members, many of whom are still active chemists. Seventeen of them were in attendance. Dr. John Piwinski was honored as recipient of the 2013 NJACS Lifetime Achievement Award. In addition, there were 5 Pro Bono awards given to individuals who contributed to the success of the section behind the scenes.
- o NJACS sponsors one nationally recognized award each year. This year's Baekeland Award winner was Christopher Chang of UC Berkeley. A well organized and attended symposium and dinner in his honor was held in Dec.
- o NJACS has sponsored the Chemistry Olympiad for many years. This year, 14 students qualified as select finalists and three of them were invited to the study camp. Of these, one joined the team in Russia as an alternate.

(continued on page 16)

2013 CHAIR'S SUMMARY

(continued from page 15)

- o NJACS participated in the effort to have the Edison Laboratories in West Orange recognized as a National Historic Chemical Landmark. This was approved and the celebration will occur in 2014. NJACS will use the occasion as an opportunity to enhance the local public awareness of chemistry.
- o In June, we were informed that the Monmouth Section was being disbanded. In response to the urging of our Executive Committee, we proposed to annex the Monmouth territory and have followed through with a poll of the former Monmouth members as well as the adjacent section's leadership. The result of the voting was overwhelmingly favorable and a petition was recently approved by Counsel at the Spring ACS meeting.
- o Project SEED again had a very successful year. There were 86 first year and 21 second year students who participated in the program. They represented schools from all over the North Jersey area, including the Union School district, which is outside of the North Jersey, but still sends students and provides major financial support to the program. Altogether public and private donors provide approximately \$100,000 annually in support of Project SEED in addition to ACS funded scholarships. A poster competition is held each September to provide the SEED students an opportunity to showcase their work. NJACS members serve as judges and selected the top four to receive laptop computers; others received ribbons and medals. The Anita J. Brandolini Outstanding Project SEED student award was given to three students this year at the recommendation of their faculty advisors.
- o A section travel grant was established to enable up to four undergraduates to present their work at National Meetings. In 2013, 4 students, two each from the College of NJ and Fairleigh Dickinson University awarded grant to attend the Spring ACS National Meeting.
- o The NJACS Teachers Affiliates has held numerous instructional meetings throughout the school year and an ACS facilitated spectroscopy workshop. Summaries of these events are available in the reports section.
- o The Sister Marian José Smith Undergraduate Outreach Competition was created to celebrate her enduring efforts to stimulate undergraduate research. Last year, more than 60 undergraduates from eight different colleges/universities in the area participated in an event co-sponsored by the Liberty Science Center. The top presentation was awarded the SMJS award.
- o ChemExpo 2013: our on-going National Chemistry Week (NCW) event took place at Liberty Science Center (LSC) Oct. 26 with 235 volunteers offering activities aimed at pre- and primary school children. Local colleges provide demonstrations based on this year's NCW theme. Our Teacher Affiliate group offered four workshops at our annual 2-day NJ Science Convention making guests aware of NCW and resources of ACS. NJACS also members set up activities at LSC on October 24 as part of a Community Night aimed at underprivileged students and their families as guests of the center. We sponsored a NCW Poetry Contest with cash awards to the top 3 winners.

Jefferson Tilley, Ph.D.

2013 Chair, North Jersey Section ACS



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For more program details, visit <http://view.fdu.edu/default.aspx?id=6139>, e-mail jdough@fdu.edu, or call 201-692-2487. Graduate Study Scholarships are available

North Jersey Meetings

<http://www.njacs.org>

NORTH JERSEY EXECUTIVE COMMITTEE MEETING

Section officers, councilors, committee chairs, topical group chairs, and section event organizers meet regularly at the Executive Committee Meeting to discuss topics of importance to running the section and representing the membership. All ACS members are welcome to attend this meeting and to become more involved in section activities.

Date: Wednesday, June 18, 2014

Time: Dinner 6:00 PM

Place: CABM Building

Time: Meeting 7:00 PM

Place: Rutgers University
Center for Advanced
Biotechnology and Medicine
679 Hoes Lane West
Piscataway, NJ

Directions can be found here:

<http://rumaps.rutgers.edu/?id=C71942>

For reservations please call (732) 463-7271 or email chemphun@gmail.com prior to **Wednesday, June 11, 2014**.

Dinner cost is payable at the door; however, if you are not able to attend and did not cancel your reservation, you are responsible for the price of your dinner.

THOMAS EDISON'S WEST ORANGE LABORATORY

to be recognized as a National Historic Chemical Landmark

Date: Friday, June 6, 2014

Times: 2:30 or 3:00 - 4:00 PM

Place: Thomas Edison National
Historical Park
West Orange, NJ

Program

Welcome/Opening Remarks

Speaker: Tom Ross
NPS Superintendent

"Chemical Solutions: The Role of Chemistry in Thomas Edison's Inventive Work"

Speaker: Paul Israel

Award presentation, and "Contemporary Connections, NHCL Overview, and ACS Themes"

Speaker: Ned Heindel
ACS Past President

Accepting Award: Tom Ross

The American Chemical Society will recognize the chemical research and developments of inventor Thomas Alva Edison (1847–1931) as a National Historic Chemical Landmark in 2014. Applications of chemistry were a common theme in many of his inventions, including the carbon filaments used in light bulbs, plastic materials used in phonograph records, development of the nickel-iron alkaline electric storage battery, and research into domestic sources of rubber.

Edison's work will be celebrated at the Thomas Edison National Historical Park in



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EDISON LABORATORY

(continued from page 17)

West Orange on **Friday, June 6, 2014**, in partnership with the North Jersey Section of ACS. A community festival for families, Edison Day, will follow on **Saturday, June 7**. For updates and information, visit www.acs.org/landmarks.

Edison opened his West Orange laboratory complex in 1887 as an expanded site for research and product development. The complex was among the most modern and well-equipped industrial research facilities in the world and included a chemical laboratory and library of chemical information to support Edison's expansive research, as well as chemical manufacturing operations and factories to produce Edison's inventions. Chemical developments originating from the West Orange laboratory included plastics and waxes for disc and cylinder phonograph records, nickel-iron alkaline electric storage batteries, and improvements to the manufacture of Portland cement.

Additional celebrations of Edison's work in chemistry will be held by the ACS at the present-day locations of his laboratories. Edison's Menlo Park laboratory will be recognized at The Henry Ford, Greenfield Village, in Dearborn, Mich., on September 20, 2014, in partnership with the Detroit Local Section of ACS. The Menlo Park lab was moved from its original site in New Jersey to Dearborn in 1928 when it was reconstructed by Edison's friend Henry Ford. The Edison Botanical Laboratory at the Edison & Ford Winter Estates were commemorated on May 25, 2014, in Fort Myers, Fla., in partnership with the ACS South Florida Section.

The American Chemical Society established the National Historic Chemical Landmarks program in 1992 to recognize important achievements in the history of the chemical sciences. Subjects recognized through this program have included Bakelite, the world's first synthetic plastic; the discovery and development of penicillin; and the work of historical figures such as Joseph Priestley, George Washington Carver and Selman Waksman. More information is available online at www.acs.org/landmarks.

Thomas Edison National Historical Park is a National Park Service site dedicated to promoting an international understanding and

appreciation of the life and extraordinary achievements of Thomas Alva Edison by preserving, protecting, and interpreting the Park's extensive historic artifact and archive collections at the Edison Laboratory Complex and Glenmont, the Edison family estate. For more information call (973) 736-0550 ext. 11 or visit: www.nps.gov/edis.

Reservations are requested due to space limitations: www.njacs.org/edison



CAREERS IN TRANSITION MEETINGS

Job Hunting??

Resume & LinkedIn writing and key word search rules are changing. To be found, come and utilize our latest insights. Our ACS trained Career Consultants offer assistance at Students2Science to help members with their job search on the second Monday of each month. Topics at this free workshop are:

- Techniques to enhance resume effectiveness
- Interview practice along with responding to difficult questions
- Networking to find hidden jobs
- Planning a more effective job search

Date: Monday, June 9, 2014

Times: Meeting 5:30 - 9:00 PM

Pizza snack and soda 6:30 PM

Place: Students 2 Science, Inc.

66 Deforest Avenue

East Hanover, NJ

Cost: \$5.00 for pizza and soda

Reservations: at www.njacs.org/careers.html

A job board and networking assistance is offered at most topical group meetings. Appointments with Bill can be arranged for personal assistance at (908) 875-9069 or billsuits@earthlink.net.

See www.njacs.org under the Career tab for Jobs hidden from sight and relevant blogs.

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BORON IN THE AMERICAS (BORAM) XIV

**Date: Sunday-Thursday,
June 15-19, 2014**

**Place: Rutgers University
Newark, NJ Campus**

As a biannual international conference, the BORAM conference attracts participants working in areas related to any of the many facets of boron chemistry (pharmaceutical, materials, medicinal, inorganic structural). The goal of this conference is to bring together scientists with an interest in the chemistry and applications of boron-containing compounds, to promote cross-fertilization between disciplines, and to provide a forum for sharing and discussing the latest developments. Examples of topics that will be discussed include:

New Synthetic Methods

Boron-containing (Nano)Materials

Borates and Boron Clusters

Applications in Organic Synthesis

Organoboranes

Applications in Organic Electronics

Boron-containing Polymers

Biomedical Applications

The 2014 BORAM conference will take place on the Newark campus of *Rutgers, The State University of New Jersey*. The conference venue is located less than 15 minutes from the Newark/New York (EWR) Airport and in close proximity to metropolitan New York (ca. 20-30 minutes to midtown or lower Manhattan).

For additional up-to-date information please pre-register or regularly check the conference website at <http://chemistry.rutgers.edu/BORAM>

If your organization is interested in sponsorship opportunities or would like to exhibit commercial products during the conference, please contact the organizer: Dr. Frieder Jäkle, Rutgers University-Newark. Tel: (973) 353-5064; Email: boram@rutgers.edu



NMR TOPICAL GROUP

Date: Wednesday, June 18, 2014

Times: Dinner 6:00 PM

Meeting 7:00 PM

**Place: CABM Building
Rutgers University**

For details, please check our website:
<http://www.njacs.org/topical-groups/nmr-spectroscopy>



NORTH JERSEY CANDIDATES

The Nominating Committee of the North Jersey ACS Section is pleased to present the slate of candidates listed below in alphabetical order by category for election to offices to begin in 2015.

Ballots will be distributed to members in the fall.

Candidates for Chair-Elect

Luciano Mueller
Matthew Mongelli

Candidates for Councilor

Amy Balija
Alan Cooper
Ronald Doll
Jacqueline Erickson
Jonathan Ho
Matthew Mongelli

Donald Truss
Molly Warnke



Paul Dooley
CEO/Founder

MatchingDonors Inc.
a 501c3 nonprofit organization
766 Turnpike Street
Canton, MA 02021
ph: 781-821-2204
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Call for Volunteers

ChemExpo 2014

Date: Saturday, October 18, 2014

On Saturday October 18th, the North Jersey Section of ACS will be holding its 20th ChemExpo in celebration of National Chemistry Week at Liberty Science Center, Jersey City, New Jersey. Please help us make a difference!

The theme for this year is "The Sweet Side of Chemistry- Candy". Join us to make this event a fun-filled day of hands-on science chemistry activities that will engage visitors in exploring the positive impacts of chemistry. The activities should be geared for 6 to 12 year olds. Check out the National Chemistry Week web page at <http://portal.acs.org/> to get some ideas for hands-on activities that you might be interested to present.

To minimize duplication of the presentations, please email us the list of activities that you/your team would like to present preferably by September 15th, 2014. Individuals contacting us first with their idea(s) will be given priority. We would like the students to be able to redo these experiments at home and/or at school so please be thorough in your presentation and explanations.

Thanks very much for all of your help. The Section is most appreciative of your efforts.

Mita Chaki - mitachaki@gmail.com

Monica Sekharan -
monicasekharan@njacs.org

Volunteer Form

Please fill out the following form and return to Bobbi Gorman at rosellerams@yahoo.com.

Count me in to volunteer at Liberty Science Center, Jersey City, New Jersey.

My name is: _____

I am volunteering to work on **Saturday, October 18** (Check appropriate box)

- 10:00 AM – 11:30 AM,
 11:30 AM – 2:00 PM,
 10:00 AM – 2:00 PM

I can be reached at: (work phone number)

My complete address is: _____

I am an employee at: _____

The activities at my table will be: _____

I will need additional tables: (Circle)

2 3 4 5 6

I will be bringing handouts on activities:
(Circle) Yes No

I will be joined at my table by the following volunteers:

Last Name _____

First Name _____

Institution: _____

Contact Information (email) _____

Last Name _____

First Name _____

Institution: _____

Contact Information (email) _____

Last Name _____

First Name _____

Institution: _____

Contact Information (email) _____

Last Name _____

First Name _____

Institution: _____

Contact Information (email) _____

Last Name _____

First Name _____

Institution: _____

Contact Information (email) _____

EMAIL TO: Bobbi Gorman at
rosellerams@yahoo.com

Call for Sponsorship

ChemExpo 2014

Date: Saturday, October 18, 2014

On Saturday, October 18, the North Jersey Section of ACS will be holding its 20th ChemExpo in celebration of NCW (National Chemistry Week) at Liberty Science Center, Jersey City, New Jersey. Please help us make a difference! The theme for this year is "The Sweet Side of Chemistry- Candy".

We are looking forward to financial support to help cover many of the expenses associated with the Section's NCW activities. A donation of \$500.00 indicates Gold Sponsorship, a \$250.00 gift indicates Silver Sponsorship and a \$100.00 gift indicates a Bronze Sponsorship. We would appreciate it if you would forward this information to the appropriate representatives within your company.

Checks should be made out to: "NJACS" (The North Jersey Section of American Chemical Society) with a memo of "NCW".

Sent to:
Jacqueline Erickson
33 Ronald Road
Lake Hiawatha, NJ, 07034-1121.

Thanks very much for all of your help. The Section is most appreciative of your efforts.

Mita Chaki and Monica Sekharan

Please fill out the information below and return the form to Bobbi Gorman at rosellerams@yahoo.com.

Sponsorship Form

My company would like to support these efforts at the _____ (indicate gold, silver, or bronze) level.

Name of the Company: _____

The following company/individuals are willing to help defray the costs of these events:

An acknowledgement letter for this contribution should be sent to:

Name: _____

Email: _____

Full address: _____

Call for Nominations

WILLIAM H. NICHOLS MEDAL AWARD FOR 2015

The New York Section is accepting nominations for the William H. Nichols Medal Award for the year 2015. This distinguished award, established in 1902 by Dr. William H. Nichols, for the purpose of encouraging original research in chemistry, is the first award authorized by the American Chemical Society. It is presented annually in recognition of an outstanding contribution in the field of chemistry, and consists of a gold medal, a bronze replica and \$5000. The medals are presented at the William H. Nichols Meeting that consists of a Distinguished Symposium related to the medalist's field of expertise and a Medal Award Dinner.

Investigators who have published a significant and original contribution in any field of chemistry during the five calendar years preceding the presentation meeting are eligible for consideration by the Nichols Medal Jury. The New York Section encourages nominations from academia, government and industry.

Each nomination requires a completed nomination form, biographical and professional data, and seconding letters. Since the nomination process utilizes the New York Section website, please access the nomination form and instructions at <http://www.newyorkacs.org/meetings/Nominations/Nichols.php>

Nominations must be received by May 31, 2014. The Nichols Medal Award Jury will meet in June 2014 to select the Nichols Medalist for 2015.

Questions regarding the nomination procedure should be directed to the ACS, New York Section Office, at njesper1@optonline.net.

(continued on page 22)

CALL FOR NOMINATIONS

(continued from page 21)

2015 NICHOLS FOUNDATION HIGH SCHOOL CHEMISTRY TEACHER AWARD

**Nomination Form for the
American Chemical Society's
New York Section, Inc.
2015 Nichols Foundation
High School Chemistry Teacher Award**
(for HS teachers who work or live in the
NY Section of the ACS)

Name of Nominee: _____

School: _____

Address: _____

Name of Nominator: _____

Title: _____

Address: _____

Phone: _____

FAX: _____

E-mail Address: _____

Please mail the completed nomination form
by June 5, 2014 to

Mr. Stephen Radice
Chair, Nichols Foundation Chemistry
Teacher Award Jury
214 Wolverine Street
Staten Island, New York 10306



ACS NEW YORK SECTION'S OUTSTANDING SERVICE AWARD FOR 2014

Many members of the New York Section provide their time, leadership talent, and knowledge to the New York Section. The tradition of excellence of the New York Section is attributable directly to the cumulative effect of these dedicated individuals. Each year the New York Section presents the Outstanding Service Award to a most deserving member of the section. The New York Section is now accepting nominations for this award.

A nomination letter with supporting data should be emailed to the 2014 OSA Committee Chair, Dr. David Sarno at dsarno@qcc.cuny.edu. Nominations will be accepted **until May 31, 2014**.

The nominations will be reviewed by a com-

mittee consisting of the previous five winners of the award. The Outstanding Service Award for 2014 will be presented at the New York Section's Section-wide Conference in January 2015.

For more information about the award along with a list of former award recipients, please visit the ACS New York Section's website at http://www.newyorkacs.org/awards_nyacs.php



2015 LEO HENDRIK BAEKELAND AWARD

The North Jersey Section of the American Chemical Society is soliciting nominations for the 2015 Leo Hendrik Baekeland Award. The Award consists of a gold medal and a \$5,000 honorarium. The Section presents the Award biannually to commemorate the technical and industrial achievements of Leo Hendrik Baekeland and to encourage younger chemists to emulate his example.

The Award is given in recognition of accomplishments in pure or applied chemistry to an American chemist as characterized by the initiative, creativeness, leadership, and perseverance of the individual (indicated by published or unpublished evidence) and who will be under the age of 40 as of January 1, 2015.

Nominations for the Award should include a letter describing the nominee's achievements, a brief biography, and a list of the nominee's more important publications. Successful nomination packets include two to three recommendation letters supporting the candidate.

Re-nominations are encouraged, provided the age requirement is still met.

Please submit materials by **December 31, 2014**, to:

Dr. Les McQuire
ACS North Jersey Section Awards Chair
17 Crown Drive,
Warren NJ 07059

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involved in ACS by e-mailing
Volunteer@TheIndicator.org**

National

TWO NEW CHEM LUMINARY AWARDS

Dear Local Section Officer,

As chair of the Local Section Subcommittee of the ACS Senior Chemists Committee, I would like to inform you that the Senior Chemists Committee is sponsoring two new ChemLuminary Awards. These initial awards will be presented at the ACS Fall National Meeting ChemLuminary Awards Event in Boston, MA, August 2015, and will be based on local section senior chemist events/activities reported thru self-nomination in the 2014 Annual Reports.

The awards are:

- Most Innovative Activity in a Local Section for Senior Chemists
- Best Ongoing Senior Activity in a Local Section that Benefits the Community, Local Schools, or Legislative Government

These awards are to recognize local sections for their efforts to increase the participation of senior members and to encourage innovative activities at the local level. The criteria will be based on number of members involved, duration of activity, impact on the local section and community, and feedback from chemists.

If you have a senior group in your section, please forward this information to the chair or organizer of that group and encourage them to self-nominate any activity they sponsor. We look forward to a successful awards program!

Roger Bartholomew
Chair, Local Section Subcommittee
ACS Senior Chemists Committee



ACS PRESIDENT'S CHALLENGE

Attention Council Members, Local Section and Division Officers,

Thank you for your continued efforts to help grow and enrich the American Chemical Society's membership. In 2013 you recruited a total of 1988 new members through the ACS President's Challenge. The local sections contributed 1306 new members and the divisions added 682. With your help, we can make 2014 an even more successful

year.

The American Chemical Society's mission is: "To advance the broader chemistry enterprise and its practitioners for the benefit of Earth and its people." Members benefit from and also contribute to the richness of our offerings. We invite and welcome every chemical scientist in our local community as well as others from across the nation and around the world to join the ranks of the world's largest scientific organization.

In your recruiting, I want to encourage you to reach out to a variety of audiences, in particular chemists living abroad. ACS has developed Worldwide.ACS.org to make it easier to recruit international members. This website describes the benefits of ACS membership which are geared specifically to chemical professionals living outside of North America.

Students are also a great source of new members. ACS utilizes Undergrad.ACS.org as well as GradStudent.ACS.org to help recruit undergraduates, graduate students and postdocs.

We hope that by bringing in new international and student members, your sections and divisions will benefit from an increase in participation and contributions from these chemical professionals and students.

For additional details about the President's Challenge, visit www.acs.org/MAC. I also invite you to review pages 5-20 of the Local Sections Toolkit for ideas on member recruitment.

Thank you for all for your continued participation in this exciting program.

Sincerely,
Tom Barton, President
American Chemical Society

**Learn more
about the
American Chemical
Society at
www.acs.org**

Others

TRI-STATE CHINESE AMERICAN CHEMICAL SOCIETY (CACs) ANNUAL SYMPOSIUM

Symposium Theme: Transforming Chemical Sciences into Better Living – Education, Innovation, and Entrepreneurship

Speakers: Senior R&D leaders from industry, distinguished educators from universities as well as influential entrepreneurs

Vendor show: A vendor exhibition will be held in parallel to podium presentations. Vendors are welcome to participate.

Career opportunities: Several companies will post job openings and collect resumes at the symposium. In addition, a career consultant from ACS will provide career advices on-site.

Date: Saturday, June 28, 2014

Time: 8:30AM – 4:00 PM.

Place: Busch Campus Center
Rutgers University
604 Bartholomew Road
Piscataway, NJ

Cost: Free and open to public.
Complimentary breakfast and lunch will be provided.

Registration: <http://tristatecacs.org> for registration, additional information and updates.

Contact: Lijuan Wang at
lijuan.wang1@verizon.com



AICHE's 2014 SPRING MEETING IN NEW ORLEANS

The significant economic opportunities — and the engineering challenges — presented by the extraction and handling of shale reserves, were explored in depth at the American Institute of Chemical Engineers' (AIChE's) 2014 Spring Meeting and Global Congress on Process Safety at the Hilton New Orleans – Riverside from March 30 to April 3. There, more than three dozen presentations were devoted to shale gas and shale oil (also known as tight oil), along with the engineering and business opportunities that these new supplies of petrochemical resources are creating in the U.S. and beyond.

One session, “Shale Gas and Tight Oil Challenges and Opportunities,” on Tuesday, April 1, offered an orientation to the shale revolution, particularly as it impacts industries in North America. Sharon Robinson (Oak Ridge National Laboratory) and R. Bruce Eldridge (The University of Texas at Austin) discussed how engineers' ability to tap into previously unreachable shale gas resources using a combination of hydraulic fracturing (or “fracking”) technologies and horizontal drilling has increased U.S. natural gas production by 25% in the last five years. This abundance of hydrocarbon raw materials points to a manufacturing renaissance in the U.S., with new energy and petrochemicals markets and an expanding workforce of engineers, technology experts, construction contractors, and others working in business and industry.

The “Challenges and Opportunities” session also focused on specific facets of the shale story, including:

- “Shale Gas: A New Era of Technology for the Petrochemicals Industry” — which discussed how new developments in shale gas have impacted the chemicals industries in the U.S., including new demand for petrochemical products such as ethylene, methanol, butane, and related petrochemical derivatives.
- “Shale Gas: A New Era for the Refining Industry” — which examined some of the projects taking place at U.S. refineries, some of which are expanding their capacities or revamping technologies to capitalize on the availability of new crude oil reserves.
- “Economically Treating Sour Gas from Tight Oil Formations” — looked at an approach to remove sulfur from extracted shale gas, to make the resources suitable for piping.

Kicking off AIChE's shale programming, on April 1, was a panel discussion devoted to the rapid growth and development of shale gas and tight oil in the U.S. The panel of industry experts also discussed the process safety considerations and challenges involved in the safe extraction and processing of shale resources.

The AIChE Spring Meeting and Global Congress on Process Safety consisted of 150 sessions across eight topical conferences and special program tracks, and was expected to draw more than 2,400 practitioners from 50 countries. For more information about the conference please go to: <http://www.aiche.org/spring>.

ChemExpo 2014



Saturday, October 18th, 2014
10 a.m. - 2 p.m.

"The Sweet Side of Chemistry - Candy"

Join us for a fun-filled day
at **Liberty Science Center, Jersey City, New Jersey**
and enjoy this additional family-friendly event for all ages
included with general admission to the Center.

(visit www.lsc.org for more information)

A lot of hands-on science activities will be presented by
chemists, college and high school teachers and students.

Coordinated by
North Jersey Section of the **American Chemical Society**



For further information go to www.njacs.org
or email mitachaki@gmail.com; monicasekharan@njacs.org

Press Releases

TRU-TAG TECHNOLOGIES

TruTag Technologies, innovators behind the “invisible barcode,” has been named a 2014 Edison Award Finalist. April 29-30, TruTag Technologies headed to San Francisco to accept the prestigious honor in person.

Press release and press-ready images are available here: <http://www.multivu.com/mnr/65835-trutag-technologies-selected-edison-awards-finalist-counterfeit-problem>

TruTag has been honored in the category of “Materials Science – Nanomaterials” and was selected after being reviewed by over 3,000 professionals in the fields of product development, design, engineering, science, marketing and education.

Recognized for their ability to dramatically disrupt the trillion-dollar global counterfeit problem, TruTag's innovation holds special promise for manufacturing. TruTags are made of 100% silicon dioxide (silica), which is FDA affirmed as GRAS (generally recognized as safe), and there are no changes to manufacturing equipment required.

TruTag Technologies, Inc. is a 2014 Technology Pioneer, as selected by the World Economic Forum. This prestigious honor was awarded to the world's most innovative and influential technology companies with the promise of significantly impacting the way business and society operates.



ANCIENT FOSSIL REVEALS OLDEST KNOWN CIRCULATORY SYSTEM

TUCSON, Ariz. – An international team of researchers from the University of Arizona, China and the United Kingdom has discovered the earliest known cardiovascular system, and the first to clearly show a sophisticated system complete with heart and blood vessels, in fossilized remains of an extinct marine creature that lived over half a billion years ago. The finding sheds new light on the evolution of body organization in the animal kingdom and shows that even the earliest creatures had internal organizational systems that strongly resemble those found

in their modern descendants.

"This is the first preserved vascular system that we know of," said Nicholas Strausfeld, a Regents' Professor of Neuroscience at the University of Arizona's Department of Neuroscience, who helped analyze the find.

Being one of the world's foremost experts in arthropod morphology and neuroanatomy, Strausfeld is no stranger to finding meaningful and unexpected answers to long-standing mysteries in the remains of creatures that went extinct so long ago scientists still argue over where to place them in the evolutionary tree.

The 3-inch-long fossil was entombed in fine dustlike particles – now preserved as fine-grain mudstone – during the Cambrian Period 520 million years ago in what today is the Yunnan province in China. Found by co-author Peiyun Cong near Kunming, it belongs to the species *Fuxianhuia protensa*, an extinct lineage of arthropods combining advanced internal anatomy with a primitive body plan.

This story and photos are online: <http://uanews.org/story/ancient-fossil-reveals-oldest-known-circulatory-system>



SEARCHING FOR LIFE ON MARS

Earthwatch has launched the first public expedition to Mars to help answer the ultimate question: are we alone in the universe?

Breakthrough aerospace technology has turned science fiction into reality, and Earthwatch is thrilled to announce their most exciting endeavor yet: a scientific research expedition to Mars in search of water and life.

Earthwatch is an international nonprofit organization that sends everyday people on expeditions around the globe to conduct hands-on scientific research alongside the world's top scientists. Participants have traveled with Earthwatch from the corners of Namibia to the depths of Australia, and now we're sending them to space.

Volunteers will spend their days hiking through meteor craters and Earth-gazing, all while looking for signs of water and life. The environment is harsh—an average temperature of about -50 degrees Fahrenheit, winds occasionally getting up to 500 miles per

hour, and the whole lack of oxygen thing—but it's also one of the most exciting spots for science ever.

Leading volunteers will be intergalactically experienced researcher Dr. Marvin Martin of the Intergalactic Science Coalition. He'll lead citizen scientists on this adventure of a lifetime to measure environmental conditions and collect any evidence of native microorganisms.

Participants depart from Cape Canaveral in Florida on the most exciting journey of their lives. With a price tag of \$1,250,000, it is not an opportunity available to everybody, but the price is tax-deductible in the U.S.

To learn more & access photographs: <http://earthwatch.org/expeditions/searching-for-life-on-mars>



ANSELL

Revolutionary Ansell RIPEL™ Liquid Repellence Technology and Ansell GRIP™ Technology Deliver Unprecedented Performance and Protection for Metal Working Applications

Ansell, a global leader in protection solutions, announces the first glove in the HyFlex product line to offer oil repellency, secure grip and cut resistance. The uniquely engineered HyFlex 11-927 glove features Ansell RIPEL Liquid Repellence Technology and Ansell GRIP Technology, combined with a cut resistant liner and a higher dip lining. This unique combination provides high levels of protection while retaining the dexterity that is a hallmark of the HyFlex offering. The innovative design brings a new level of protection, performance and oil repellence to workers facing mechanical risks in slippery conditions.

The need to empower workers with the proper protection is critical: approximately 60 percent of industrial workers performing primary assembly, metal working and stamping operations are at risk for coming into contact with liquids, including lubricants and oils, which when absorbed through the skin can cause irritation and contamination of the body[i]. To achieve both cut protection and oil repellence, workers are often forced to double-up on gloves, resulting in a reduction of grip or flexibility; or they select gloves that offer proper protection but absorb liquids and are prematurely discarded, increasing costs. Ansell engineered the oil repellent HyFlex 11-927 gloves to address the risks that mechanical workers face in oily environments, while still delivering the comfort, safety and durability that is the standard of the HyFlex glove series.

For more information on HyFlex 11-927 or other products from the HyFlex glove line, go to www.ansellhyflexus.com.

Conference on Small Molecule Science

August 11-13, 2014 • Williamsburg Lodge, Williamsburg, VA
Space is limited • Visit www.CoSMoScience.org to learn more and to register

The Integrated Analytical Methods Conference

Develop your ability to employ a variety of technologies in the face of rapidly changing demands

COSMOS

The Society for Small Molecule Science

2014 Session highlights

The Annual Method Development Olympics give practitioners the chance to compete with their peers to identify, extract, separate, and quantify ingredients from a challenging matrix. Three finalists are chosen to present on day 1 of CoSMoS 2014 (August 11th). Medals are awarded based on attendees' votes for the best analytical approach.

USP Standards Workshop – With the advancement of analytical tools and techniques USP standards, used by the FDA for guidance in the approval of food and drug products are being updated to reflect current technologies, ensure confidence and predictability and relevance, and meet regulatory expectations. This workshop discusses the current status and future direction of the USP.

New Horizons in Analytical Chemistry Techniques – Technology consistently evolves, providing analytical scientists with a diverse toolbox and innovative approaches for solving complex problems. CoSMoS offers a series of presentations highlighting new technology and applications on the horizon destined to impact modern analytical practice.

Workshop: Wisdom of the Crowd: The Changing Scientific Workforce – Professions change and new opportunities for seasoned analytical scientists are changing. Have you considered a late stage career change? Not sure where to start? Join industry leaders in an informal discussion of current industry trends, career opportunities, and thoughts on how to successfully make a transition.

Additional Sessions:

- Modern Structure Elucidation
- Biology Meets Small Molecules
- Investigations: Missing the Unknown Known
- Real Time Sampling

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There are two important ways to recruit through our services. One is to place a print ad in the Indicator. The other is to place a web site ad reaching out to 40,000 ACS members. We recommend using both low cost methods.

You can view both of these opportunities by going to the link below.

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