



Green Mountain Local Section of the American Chemical Society

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Green Mountain Section website:
<http://greenmntacs.sites.acs.org>

Officers 2013

Chair..... Heather Bean
Chair-Elect..... Richard Milius
Secretary..... Senthil Natesan
Treasurer..... Beth Medeiros
Councilor..... Willem Leenstra
Alternate Councilor..... Jeffrey Byers

Committee Chairs

PR/Web Master..... Senthil Natesan
Awards..... Sandra Lynch
Gov't Affairs..... Sarah Locknar
K-12 Outreach..... Scott Gordon
Newsletter Editor... Willem Leenstra



Upcoming Events

October 23-26, 2013 – NERM
(Northeast Regional Meeting), held
in New Haven, Connecticut



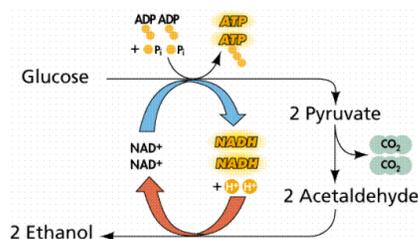
ACS website: www.Chemistry.org

GMLS October Newsletter

“Beer Chemistry”

Date: Wednesday, October 30, 2013

Time: Talk at 6:00 PM -- Dinner to follow



Speaker: Dwight Matthews
Department of Chemistry
University of Vermont

[biography can be found on the next page]

Title: “Comments from a Chemist about the
Making of Beer”

Location: Kalkin Building, Room 101
University of Vermont

The Kalkin Building at the University of Vermont is located half-way between the Cook (Chemistry) Building and the Fleming Museum. Parking is allowed in the parking lot bordering the museum and Votey.

Dinner: Vermont Pub and Brewery
144 College Street
Burlington, Vermont

If you wish to join us for dinner after the talk (approximately 7:30 p.m.), please RSVP via e-mail to Willem.Leenstra@uvm.edu as soon as possible for an approximate headcount, but by the end of the work day, **Tuesday, October 29.**



Biography for Prof. Matthews



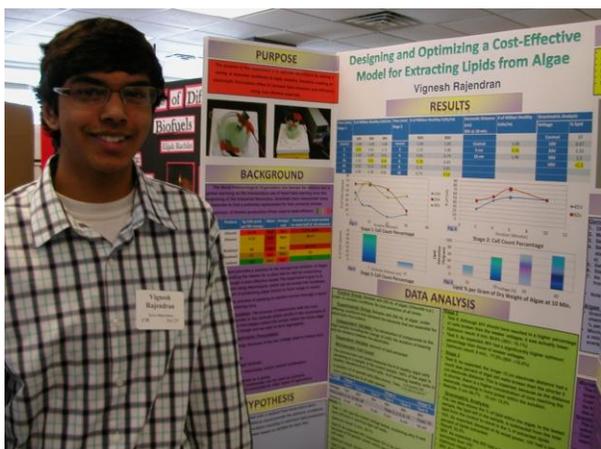
This month's invited speaker, Dwight Matthews, received his Ph.D. in Analytical Chemistry from Indiana University in 1977. After a research faculty position at Washington University, St. Louis, he moved to the tenured faculty track at Cornell's Medical College. In 1996, Dr. Matthews took on double status at the University of Vermont as both Professor of Medicine and of Chemistry. Since 2002, Dr. Matthews has served as Chair of the Department of Chemistry at UVM. He has been honored as the UVM's University Scholar in 2004, and in 2007, Dr. Matthews became a Member of the Vermont Academy of Science and Engineering.



Vermont State Science and Mathematics Fair

On Saturday, April 13, 2013, the Vermont State Science and Mathematics Fair was once again held at Norwich University. Heather Bean, Senthil Natesan, Richard Milius, and Willem Leenstra represented our Green Mountain Section by reviewing numerous projects, and selecting the following three winners of an ACS award.

We heartily congratulate this year's winners on their accomplishments as young chemists! The winners and their project titles were:



Vignesh Rajendran

First Place Award was won by Vignesh Rajendran, a 10th grade student at Essex High School. Maria Ung was the teacher who mentored Vignesh. His project was:

"Designing and Optimizing a Cost-Effective Model for Lipid Extraction from Algae"

Vignesh tested and optimized conditions for electrolytic flocculation, an important step for releasing lipids from algae during the production of biofuels. The variables he tested and optimized were DC voltage biasing, duration of the biasing, electrode type, and distance between the electrodes.

Vignesh's First Place Award garnered him a \$100 Amazon gift card, a Merck manual, and a 4-year scholarship to Green Mountain College.



Marissa Arduca

Our Second Place Award went to Marissa Arduca, who is a 10th grade student at Rutland High School, where Anne Marie Mahar was her supervising teacher. Her project was focused on:

"Cosmetic Chemistry"

Marissa hypothesized that a heat lamp would fully oxidize (develop) hair color faster than a full-head salon dryer because the heat lamp produces higher temperatures. Upon experimentation she found that hair color is fully developed five minutes faster (15 vs. 20 minutes) using a heat lamp versus a salon dryer. She calculated the economic benefit of using the heat lamp, which included faster customer turn-around for the stylists and reduced energy costs for the salon.

With her Second Place Award, Marissa also won a \$100 Amazon gift card, a Merck manual, and a 4-year scholarship to Green Mountain College.



Sophia Moore-Smith

Our Third Place Award winner this year was Sophia Moore-Smith, a 7th grade student at Christ the King School in Rutland. She was a winner with her project:

"Water for Life"

Sophia investigated water treatment methods (filtration, distillation, pasteurization, and capillary action) to learn which were most effective and efficient in removing suspended solids and/or dissolved contaminants in water. Her efficiency evaluation included rate of clean water production and reliability of the treatment. She concluded that filtration removed water with suspended solids most effectively and capillary action best treated water for dissolved contaminants.

As a Third Place Award winner, Sophia won a \$50 Amazon gift card, a Merck manual, and a 4-year scholarship to Green Mountain College.



Report from the Councilor, Willem Leenstra

I attended the Council meeting at the Fall National Meeting, held in Indianapolis, Indiana, September 8-12, 2013. It was a first time at this venue, and consequently an attendance of just over 10,840 registrants was somewhat lower than desired. Totals in the two marker categories were as follows: 6,630 regular attendees, and 2,584 students. What follows are the highlights and more interesting announcements from that meeting.

2014 President-Elect Candidates

The previously Council-selected candidates Bryan Balazs and Charles Kolb were joined by petition candidate Diane Schmidt. Members of ACS have been sent an electronic ballot (October 15), and can vote for their ranked choice until November 15, 2013.

Special Discussion Item

A special discussion item was put on the Council agenda for this meeting. ACS President Marinda Wu presented

and moderated a discussion on "What can we – as the Society and as individual citizens – do to help create jobs or demand for chemists?" She shared five recommendations from the presidential task force "Vision 2025: Helping ACS Members to Thrive in the Global Chemistry Enterprise" and what they might imply for our efforts to help create jobs: discover and share information about the skills and competencies that a wide range of employers will need; continue to expand resources which help our members to position themselves for successful careers in the global chemistry enterprise; enable entrepreneurs to create and strengthen their start-up efforts that hire chemistry professionals; advocate for policies that improve the business climate and promote the creation of chemistry jobs; and work with other stakeholders to understand and influence the supply and demand of chemists and jobs. Following the presentation, numerous Councilors engaged in a discussion of this focused topic on possibilities to encourage jobs creation and offered several suggestions.



Other News

In news of regional interest, the Council voted, on the recommendation of the Committee on Local Section Activities (LSAC), to approve a request from the Syracuse Local Section to change its name to the Central New York Local Section. This name change better reflects the constituent membership.

Also, after much debate, a proposed name change for the Division of Colloid and Surface Chemistry to the Division of Colloids, Surfaces, and Nanomaterials was defeated by the Council in a close vote.

Committee Work

As your Councilor, my current activity is as a member on the Budget & Finance Committee (B&F); its membership is appointed jointly by the ACS President and the Chair of the ACS Board of Directors. The subcommittee on which I serve reviews proposals for new programs that seek line-item status on the ACS budget. Final decisions are made by the Board upon our recommendations.

During this last cycle, the following three proposals were reviewed by B&F, and ultimately approved by the Board: [ACS International Center](#), which establishes an internet-based presence through which chemistry practitioners at all career stages can find information about existing exchange and collaboration opportunities.

[National Association of Chemistry Teachers](#), which is an organization housed within the ACS Education Division

which establishes a professional home that supports the K-12 education network in their needs.

Entrepreneurial Initiative, which creates a framework and a suite of offerings that delivers training and support for chemical entrepreneurs at the various stages of their development. If you have any further questions, feel free to contact me at Willem.Leenstra@UVM.edu.

Pictures from the Last Meeting

On July 17, our section enjoyed an evening on Lake Champlain. The Caribbean dinner was excellent, and the company even better!



Local Section Officers Michele Dube (foreground) and Beth Medeiros (back), with guests, enjoying the beautiful sunset



GMLS Chair Heather Bean bestowing the 60-year ACS membership award to Irv Goldman

The Aha! Moment Project

Irv Goldman (pictured in the left column, bottom) is proposing a feature for our newsletter on recollections of creative sparks that sometimes get ignited in chemists' brains. It is his thought that especially our senior chemists must have been blessed with some such "moments". His so-called Aha! Moment project is initiated here with a historical background, a call for submissions, and Irv's own Aha!moment in his words.

Purpose: to have senior members of the section reach back in their memories for "Aha! Moments" associated with their careers and summarize them for more-junior members and student associates.

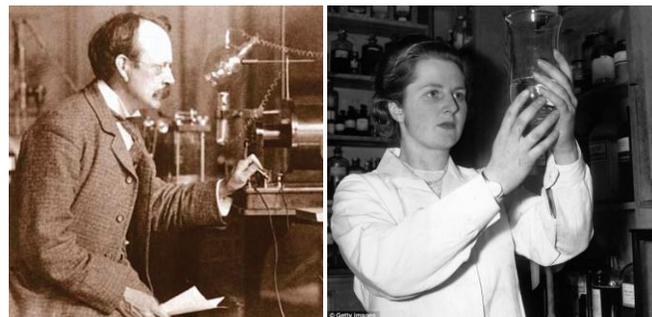
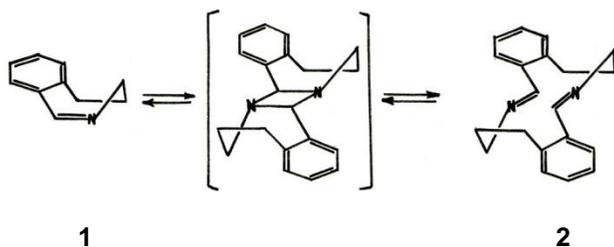
Two outcomes can be envisioned: (1) a personal sharing of salient examples of the highlights, the joys, the accomplishments, the surprises which are inherent in the broad discipline of chemistry; and (2) setting the stage for newcomers to the field who are recipients of instrumentation-driven progress in the science to envision what the science was like back-when.

Irv's Example: Some years ago I initiated an Aha! Moment by-line in C&E News. While my idea was to have ACS members document prized moments in their careers as a way of exemplifying the diverse rewards of being chemists, the project became a window for some Nobel Prize winners --- hardly fitting my goal that everyone in chemistry can have such rewards. (Remember the first time you crystallized benzoic acid???)

My published Aha! Moment is provided below to exemplify a format and also to provide a Then/Now comparison for our younger members. At the outset let me mention that the work was done in 1969; I had occasion to prepare an imine for cyclo-addition reactions, said imine having been prepared previously by a colleague, using a published protocol. Had the colleague carried out any analytical evaluations of the proposed structure? Don't know. Also, the physical measurements available in those days were less sophisticated than those in the present era. As you shall see, there was a remarkable surprise waiting in the rafters.

From C&E News:

As a bench scientist at Pfizer Central Research, I had occasion to study the reaction product of the Bischler-Napieralski cyclization of *N*-formyl-3-phenylpropylamine. The expected product, the seven-membered-ring imine (1), was found, surprisingly, to exist in equilibrium with the 14-membered-ring imine dimerization product (2). Both monomer and dimer were isolable and well characterized.



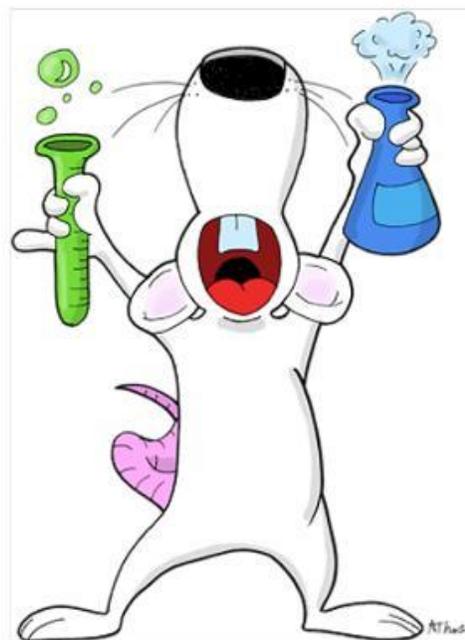
J.J. Thomson had one

And Margaret Thatcher must have had one

The pivotal moment in the study was the observation of a rapidly changing NMR spectrum of the crystalline reaction product in deuteriochloroform solution, with diagnostic shifts of the aromatic and azomethine hydrogens. The Aha! moment was the subsequent mass spectral finding that the crystalline reaction product was the 14-membered-ring dimer of the target seven-membered-ring product, and that the original reaction product before crystallization was, in fact, the seven-membered-ring structure. The ready interconversion of monomer and dimer was found to be acid-catalyzed, with the monomer/dimer equilibrium constant in the range of 15.

This work was subsequently published in *J. Am. Chem. Soc.* 1969, **91**, 4941, as a Communication. Science can be full of some wonderful—if not profound—surprises.

Call for Participation: Senior members --- please reach back in your memories and dredge-up AHA! Moments from your careers. Send them the newsletter editor at our regular email address (greenmntacs@gmail.com) with the subject line "Aha!" for inclusion on the Section Web site and/or Section Newsletter.



If you have had one too, consider submitting your own personal Aha! Moment