
THE OCTAGON



Volume 89, No. 4, April 2006

Lehigh Valley Section of the American Chemical Society

In This Issue:

April Meeting Announcement	1	Councilors Report	3
Final Meeting	2	Governance Report	3-4
LVACS Officers	2	This Month in Chemical History	4-5
February Meeting Minutes	2	CPT Information	5

Meeting Announcement:

787th LVACS Meeting:

Moravian College

Student Poster Session & Student Awards Night

Students are encouraged to attend

Date: Tuesday, April 18, 2006

Location: Moravian College – North Campus

Reception and Undergraduate Student Research

Poster Session: 5:00 – 6:15 pm, Lobby Collier Hall of Science

Dinner: 6:15 pm – UBC Room, Hauptert Union Building

Meeting & student Awards Presentation: 7:30 pm

Dana Lecture Hall, Collier Hall of Science

Talk: At the conclusion of the meeting - Dana Lecture Hall, Collier Hall of Science

Menu: Buffet featuring Almond Crusted Chicken and Pasta Primavera

Cost: members \$20, students & retirees \$10

Contact: Reservations: LouAnn Vlahovic by **Noon, Thursday, April 13th** (Note: Moravian College will be closed Friday, April 14th). Please include your name, affiliation, and for students whether they are an awardee, poster presenter or both. Registration can be made by phone (610-861-1300) or by email melnv01@moravian.edu (the last two digits are numbers). Please put LVACS Registration in the subject line. (Note: email registration will be confirmed by return email.)

Directions: Directions to Moravian can be found on the web at <http://www.moravian.edu/admission/directions.htm>. Suggested parking is in Lots M, N, & O, along Locust Street. A campus map is available at <http://www.moravian.edu/campusMaps/north.htm>.

Speaker: Carl Salter

Dr. Salter is an Associate Professor of Chemistry at Moravian College, where he has taught physical chemistry since 1993. He received his Ph. D. in 1986 from Vanderbilt University under the direction of Prof. Joel Tellinghuisen. His research interests focus on electronic structure calculations and molecular spectroscopy, as well as computer interfacing and unusual applications of least squares fitting. His interest in swimming pools is strictly academic and athletic.

Talk: The Chemistry of Swimming Pool Maintenance

According to figures from the Association of Pool and Spa Professionals, there are roughly 8 million residential pools in the United States, and each year pool owners spend about 4 billion dollars on their maintenance. Pool owners routinely measure chlorine, pH, water hardness, total alkalinity, and total dissolved solids and then purchase other chemicals to add to their pool water to keep these measurements within strict limits. Though swimming pool maintenance is an interesting practical application of chemistry, and illustrates many fundamental ideas covered in a college-level general chemistry course, few pool owners understand the chemical basis of their actions. This talk will cover the main chemical problems in swimming pool maintenance, chlorine sanitation and calcium carbonate solubility balance, and will demonstrate the central importance of pH to both problems. pH affects the balance of two important processes: the equilibrium between hypochlorous acid and hypochlorite ion, and the equilibrium between calcium ions in solution and calcium carbonate in the cement or plaster liner of many pools. Chlorination and calcium carbonate solubility and their interplay with pH provide practical examples of chemical equilibrium. We will also look at the analytical methods used to monitor pool chemistry and common practices such as “shocking” that either keep pool chemistry under control or correct problems.

Final 2005-2006 Meeting

**Friday May 12 -
DeSales (H.S. Teacher's night)**

LVACS Officers - 2006:

Chair: T. Michelle Jones-Wilson
East Stroudsburg University
East Stroudsburg, PA 18301
mjwilson@po-box.esu.edu 570-422-3703

Chair Elect: Paul Bouis
pbmbi@rcn.com

Immediate Past Chair: Tara Baney
Merck & Co., Inc. West Point, PA 19486
tara_baney@merck.com 215-652-7486

Secretary: Chester Crane
Bangor PA
[ccrane9@yahoo.com](mailto:crcrane9@yahoo.com) 610-588-0073

Treasurer: John Freeman
East Stroudsburg University
East Stroudsburg, PA 18301
jfreeman@po-box.esu.edu 570-422-3446

Councilor: Carol Baker Libby
Moravian College, Allentown, PA 18018
cblibby@cs.moravian.edu 610-861-1629

Councilor: Pamela D. Kistler
Cedar Crest College, Allentown, PA 18104
pdkistle@cedarcrest.edu 610-437-4471 x 3508

Alternate-Councilors: Roger Egolf & T.
Michelle Jones-Wilson (see above)

Octagon Editor & Webmaster:
T. Michelle Jones-Wilson (see above)

Upcoming Changes in the Website

LVACS has recently purchased the domain www.lvacs.org on a five year licence. National ACS has recently opened space on its server to host local section websites free of

charge. Therefore, this summer the website will be moved from www.esu.edu/lvacs to its new location. Details will be published in the September issue of the Octagon and a redirect link will be in place from the old URL.

LVACS Meeting Minutes - February 2006

The 785th meeting of the Lehigh Valley Section of the American Chemical Society was held on February 22, 2006 at Muhlenberg College. Chair Elect Paul Bouis called the meeting to order at 7:17 pm.

Treasurer's report – DaVinci Center January meeting cost approximately \$4000, offset by about \$800 taken in, but the section is financially solvent.

The current website is at esu.edu. A new website domain name has been purchased - lvacs.org – we will be switching to the new site in May.

An executive council meeting was held 2/20/2006. The scholarship program is going to be revised. In the new system, the recipient of the scholarship will be able to receive another \$1000 in the junior year as long as the GPA is 2.8 or above. There will continue to be an essay contest. The award for this year will be given at the Moravian meeting to Deborah Lynn Evans. The organic scholarship will be combined from two \$500 awards to one \$1000 award. In addition, there will be an endowed scholarship for the section. We will be soliciting industrial partners for this.

Dr. Marion Smith of Muhlenberg College then introduced the speaker for the evening, Dr. Darrin Pochan of the University of Delaware. The title of the talk was, "Construction of Nanostructures through Polypeptide Self-assembly." His group works with others to build nanostructures through self-assembly by designing and synthesizing new molecules. A variety of microscopy (transmission and scanning electron, optical, laser scanning confocal and atomic force/surface probe) and scattering (small-and wide-angle x-ray and neutron, x-ray and neutron reflectivity) techniques are used to elucidate bulk, solution, and thin film structure. Additional information can be found on Dr. Pochan's web site: <http://www.udel.edu/mse/Faculty/Pochan.htm>.

The next meeting will be held at Albright College in Reading on March 30, 2006. The following meeting will be held at Moravian College on April 18, 2006 and will include a poster session. The meeting was adjourned at 8:43 pm.

LV-ACS Councilors' Report

Submitted by Councilor Carol Baker Libby

Councilors Pam Kistler and I represented the Lehigh Valley local section at the 231st National Meeting of the American Chemical Society in Atlanta, GA, March 26-30. We spent many hours working in committees with other Councilors from across the country. As usual, the culminating event was the Council meeting, Wednesday morning 3/29, where nearly 500 Councilors, elected by local section and technical division members, gather to hear reports from committees, the Board of Directors, and ACS Executive Director Madeleine Jacobs. Here are some highlights from the meeting:

- Council voted for two candidates to run this fall for the office of President-elect in 2007: Bruce Bursten (University of Tennessee at Knoxville) and Bassam Shkhashiri (University of Wisconsin).

- The new ACS vision statement was unveiled. It is "*Improving people's lives through the transforming power of chemistry.*" (See chemistry.org for more about this)

- Information was shared: 12,546 attended this national meeting in Atlanta.....in 2005 there were 158,422 ACS members, reversing a 4-year downward trend.....Chemists Celebrate Earth Day is coming up April 22, the theme being Celebrating Chemistry: Dig It! (the topic is dirt).....October 22-28, 2006 is National Chemistry Week with the theme of "Your Home-It's All Built on Chemistry."

2005 was a good year financially for the ACS due to increases from membership dues, investment gains, and above-budgeted revenues from journals and Chemical Abstracts Services. The Society has a yearly revenue flow of about \$50 million dollars and assets of \$211 million. Nonetheless, dues will go up to \$132 in 2007, a \$5 increase over this year, according to a formula previously approved to take into account inflation, etc.

The most buzz at Council and Committee meetings was about the report of the "Governance Review Task Force" which was charged with reviewing the Society's governance structure to ensure that the ACS is positioned to best fulfill its mission, meet member needs, and remain a world-class organization in the 21st century. The task force developed a framework that emphasized five key elements of the Society's governance, which are: membership, geographical organization, disciplinary organization, governance structure, and governance operations. A separate article about this task force follows.

ACS Governance Review Task Force - What Do You Think?

Submitted by Councilor Carol Libby

How can the American Chemical Society remain the premier organization for chemists in a rapidly changing world? Are there some aspects of the ACS' governance structure that may impede it from meeting its members' needs? This was the charge to the ACS Board of Directors-Council Policy Committee Governance Review taskforce, which met throughout 2005 and reported its findings. The task force asserted that the ACS is a strong and healthy organization, but it identified some modifications that might be valuable to improve volunteer members' experience and increase the speed and agility of the ACS to respond to external factors, such as the increasing role of multidisciplinary science, globalization of the chemical enterprise, and the increasing competition for members' time and money.

Five areas of consideration were developed (membership, geographical organization, disciplinary organization, governance structure, and governance operations) and released in Atlanta to stimulate discussion in the general membership. It was emphasized that no action has been taken on any of these suggestions. A selection of the discussion items is presented below. I would be happy to send any interested section member a more complete document of the Governance Review Task Force's report; email your request to cblibby@cs.moravain.edu. If you would like to respond to any of the discussion items, you are requested to send your opinion to the national ACS office at governancereview@acs.org. If you do so, please send me (cblibby@cs.moravain.edu) and Pam Kistler (pdkistle@cedarcrest.edu), the other Lehigh Valley ACS Councilor, a copy of your comments, as we are eager to know what our members think so we can fairly represent our section's view should any of these "suggestions" move toward reality.

Governance Review Task Force discussion items:

1. Include Student Affiliates as members (continuing their reduced dues category and current benefits) and eliminate the Associate Member category.

2. Make all applicants with a science degree or work experience eligible for full membership. Applicants without a science degree or work experience in chemistry should be accepted into the ACS as Society Affiliates.

3. The Student Member category dues discount should apply to postdoctoral fellows as well as graduate and undergraduate students.

4. Explore alternative ways of bringing a geographical view to governance and services, such as:

-
- Enable a regional body to provide support to constituent Local Sections.
 - Local Sections elect representatives to a regional body.
 - Regional bodies elect representatives to a national Council with fewer members.
5. Provide additional staff support to local section and regional volunteers.
 6. Reduce the number of Councilors through attrition, term limits, and restructuring, and develop a new formula to determine the number of Councilors.
 7. Have one meeting of the Council and some committees per year, rather than two. Use modern technology, e.g., teleconference, and regional meetings to continue the necessary and valuable interactions.
 8. Identify ways to separate governance activities from the technical programs of National Meetings.
 9. Enhance the communication to, and understanding of, members about the net contributing operations of the ACS and their relation to fulfilling the ACS mission.
 10. Use business resources as venture capital for chemistry-related projects.
 11. Establish term limits for ACS Councilors (as there are for all other ACS elected and appointed positions).

This Month in Chemical History - Part 2

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

Prepared for SCALACS, the Journal of the Southern California, Orange County, and San Gorgonio Sections of the American Chemical Society

A few years ago I obtained a number of volumes of a series "The Mallinckrodt Collection of Food Classics" published by that manufacturer in the mid-1960s. Most of the books are facsimile reprints of early classic cookbooks, but Volume II is different. It is a facsimile of an 1820 Philadelphia publication reprinting rapidly an English publication of the same year. This influential book, by the chemist Fredrick Accum, deserves to have its complete title, in the early 19th. century style given here: "A Treatise on Adulterations of Food and Culinary Poisons. Exhibiting The Fraudulent Sophistications of BREAD, BEER, WINE, SPIRITUOUS LIQUORS, TEA, COFFEE, CREAM, CONFECTIONERY, VINEGAR, MUSTARD, PEPPER, CHEESE, OLIVE OIL, PICKLES. And other articles employed in domestic economy. And METHODS OF DETECTING THEM."

So who was Fredrick Accum, and why this book? For the following biographical sketch I am greatly indebted to a substantial article on Accum by Lawson Cockroft which appears on the website of the Royal Society of Chemistry's Library and Information Service. Accum was born in Germany on March 29, 1769. His father was a

merchant and soap-maker. After beginning his education at the local gymnasium Fredrick was apprenticed to a local pharmacist and became acquainted with the family of William Brande, who provided medicines to the court of George III in London. Accum moved to London in 1793, worked in Brande's laboratory, and extended his education by attending lectures. He got to know William Nicholson who edited a well-respected chemical journal (Nicholson's Journal) and helped to translate foreign articles for inclusion. In 1798 Accum began to contribute a series of articles to the journal on adulteration of medical preparations.

Accum set up his own establishment in 1800 as a supplier of chemicals and equipment and developed considerable expertise in analytical chemistry to ensure the quality of his products. For a year he assisted Humphry Davy as a demonstrator at the Royal Institution. Accum's first book, "System of Theoretical and Practical Chemistry" was published in 1803 and was well subscribed, and he began to offer the only laboratory course in experimental chemistry available in London at that time. Accum's American pupils included James Dana, the famous mineralogist, and Benjamin Silliman, first Professor of Chemistry at Yale. Not surprisingly Accum's equipment and chemicals found their way to the initial Chemistry Departments established in the United States.

Accum became interested in the novel prospect of providing coal gas commercially for heating and lighting and testified to government committees on the subject. By 1815 some fifteen miles of London streets were gas-lit, and Accum, always alert to new opportunities, published a book on coal gas manufacture. In 1817 he published a book "Chemical Amusement" describing experiments suitable for the drawing room, and created "Chests of Chemical Amusement" containing the necessary chemicals and equipment and selling for ten to eighteen guineas, a lot of money at the time.

By 1820 Accum was ready to publish his magnum opus mentioned above and concerned with adulterations of food products. It was reviewed in all the leading journals – not the chemical journals but the popular literary magazines such as Blackwood's and the Edinburgh Review. The first thousand copies sold out in under a month and a second edition appeared immediately. The book, and Accum, were vigorously attacked by food and drink manufacturers who alleged that they were unfairly smeared by the work. Meanwhile Accum was accused of mutilating books in the collection of the Royal Institution, and a warrant for a search of his rooms led to the discovery of some 30 pages removed from books in the Royal Institution's library. Accum was released on bail but never came to trial. Badly depressed he left England,

forfeited his bail, and returned to Germany.

He soon obtained two posts related to applied chemistry in Berlin. He published in 1826 his only book in German on the properties of building materials. While he continued to publish in the journal of the Berlin Royal Academy of Sciences his articles were submitted either anonymously or under the rather transparent pseudonym of Mucca. New editions of his treatise on adulteration appeared in England without his name on the title page. And it was not until 1860 that food regulation was written into law in England in the Adulteration Act. But Accum had died in Berlin in June 1838.

In my next column I will look at the contents of Accum's Treatise. (*Dr. Goldwhite's next column will be published in the May issue of the Octagon*)



Invitation for Feedback on the ACS Approval Guidelines

The ACS Committee on Professional Training (CPT) is undertaking a major revision of the ACS Guidelines for approval of bachelor's degree programs in chemistry. The goals of revising the ACS guidelines include:

- * Simplifying the ACS guidelines for approval of chemistry programs
- * Allowing greater flexibility for departments to develop certified degree tracks
- * Encouraging department-initiated innovation and curriculum improvement
- * Providing faculty and infrastructure requirements that support excellent chemistry programs.

The overview of the proposed revisions to the ACS guidelines ([link](http://www.chemistry.org/education/cpt)) that CPT is considering can be accessed from the CPT website at www.chemistry.org/education/cpt.

CPT invites you and your department to respond to these proposed changes by June 1, 2006, and thereby contribute to the ACS guidelines revision process. Please send comments to CPT by email to cpt@acs.org with a subject of "ACS Guidelines Revision."

Changes in the Guidelines for ACS Approved Programs in Chemistry

11th Council on Undergraduate Research (CUR) National Conference: Learning Through Research: Dynamic Faculty, Students and Institutions, June 24-27, 2006, DePauw University

During the upcoming CUR National Conference, the Committee on Professional Training (CPT) will continue its dialog with the chemistry community on proposed changes to the ACS Guidelines. The interactive session

titled Changes in the Guidelines for ACS - Approved Programs in Chemistry will outline the proposed revision and offer an opportunity for discussion of the advantages/disadvantages of the suggested changes. Among many important issues considered during the revision process, self-evaluation of chemistry programs and assessment of student outcomes are among the topics that will be discussed during the upcoming session during the CUR conference.

Revising the ACS Guidelines for two-year and four-year programs: A community dialog of issues and opportunities

19th Biennial Conference on Chemical Education
July 30-August 3, 2006, Purdue University

Most four- and two-year college faculty members are familiar with the ACS Guidelines for chemistry programs in four-year colleges and universities. On behalf of ACS, the Committee on Professional Training (CPT) approves departments or programs that meet the guidelines, and chairs certify those students who have met the curricular guidelines of the approved program.

Many members however remain unaware of another resource, designed specifically for two-year programs by the Society Committee on Education (SOCED). Although the Guidelines for Chemistry Programs in Two-Year Colleges are not used in any formal ACS approval process, they do serve as a guide for institutional self-studies and program reviews. The Guidelines for Chemistry Programs in Two-Year Colleges are focused on transfer programs and should be revised to reflect the revisions being made to ACS Guidelines for four-year programs.

SOCED and CPT have begun a dialog about the respective revisions and ways in which two- and four-year programs can work together to enhance undergraduate education in chemistry. You are invited to contribute to this discussion during the upcoming interactive symposium titled "Revising the ACS guidelines for two-year and four-year programs: A community dialog of issues and opportunities" at the upcoming 19th Biennial Conference on Chemical Education, which will take place at Purdue University, IN on July 30 – August 3, 2006.

