

# THE OCTAGON



Volume 92, No. 3, March 2009

Lehigh Valley Section of the American Chemical Society

## *In This Issue:*

March Meeting Announcement	1	LVACS Officers and Contact Information	5
April Meeting Announcement	1	Message from Madeline Jacobs	5-6
Upcoming Meetings	2	News from National ACS	6-7
Message from the LVACS Chair	2	New Section Email Address	7
2009 LVACS Election Results	2	LVACS Poster Session Announcement	8
This Month in Chemical History	3-4	LVACS Travel Award Announcement	9
LVACS Organic Scholarship	4		

## *807<sup>th</sup> Meeting of the LVACS Muhlenberg College*

*Friday March 27, 2009  
High School Teachers Night*

**Reception:** 5:00 - 6:00 PM Registration w/light refreshments The Forum of Moyer Hall (building next to the Chapel)

**Dinner:** 6:00 PM Moyer Hall

**Meeting and Talk:** 7:30 PM Trumbower 130

**Menu and Meeting Details:** Please see meetings link at [www.esu.edu/lvacs](http://www.esu.edu/lvacs) Information will be posted on the website as soon as it is available.

**Directions:** Visit the Muhlenberg website at [www.muhlenberg.edu](http://www.muhlenberg.edu)

**Speaker: Joan Harvey**

**Topic:** Flavor Scientist Joan Harvey combines flavors to create new and different candies and gums. She asks questions like, "Why does a flavor used in soda not taste the same in chewing gum?" Or, "Why do people taste things differently so that some people like bananas and others don't?" Join the Flavor Tasters and learn about making new candies and gums. At [kidsciencechallenge.com](http://kidsciencechallenge.com) you can find fun flavor

making and tasting projects, then compare your new flavors with other Flavor Tasters! And you can enter the Kids' Science Challenge to have a chance to win a trip to the Cadbury Flavor Laboratory, to invent new candies with Flavor Scientist Joan Harvey.

<http://www.pulseplanet.com/dailyprogram/dailies.php?POP=4407>

Samples will be provided!

For more information check the meeting link on the section website. A complete bio and abstract will be posted as soon as available.

## *808<sup>th</sup> Meeting of the LVACS Moravian College*

*Tuesday April 28, 2009  
Student Awards Night  
and Undergraduate Poster Session*

Meeting details to be published in the April issue of the Octagon.

The April speaker will be Valerie Kuck presenting ideas on how to succeed in the job market!

## ***Spring 2009 LVACS Meetings***

***April 28 - Moravian College -  
Student Poster Session -  
Student Awards Night***

***May - Cherry Valley Winery  
Winery tour and wine tasting  
Date TBA***

### ***Message from the LVACS Chair***

I am excited to be writing you to update the Section's progress for the year thus far. I am pleased to report that our section has avoided the economic perils that have been plaguing the rest of the world's economy right now. We have several new events planned all ready for this year and would welcome even more if anyone has the energy to help plan them. This is YOUR section and while we are here to help, it will only be what all of us make of it!

We have completed the annual elections and are now fully staffed again for the upcoming year. For the first time in recent elections, we had contested elections suggesting a renewed energy around the section. Thank you to all of the candidates for a very civil campaign season and congratulations to all of the new officers.

Exciting and informative events are planned for this year to get more in touch with the community and to continue to generate the renewed enthusiasm in our Section. In March, there will be a Family Science Night. There will be a summer event this year at a July Iron Pigs game. A Science Café is being planned for the fall. We will be continuing our successful past programs of the Chemistry Olympiad, the Organic Chemistry Competition Scholarship, the Student Poster Night, and High School Teacher's Night. Details of all of our programs can always be found in The Octagon.

There will be monthly meetings this year, as we have all been accustomed to. The meetings are generally sometime in the second half of each academic month, and we try to move the weekdays

they are held around a bit to accommodate those members that have the same commitments each week.

We have been challenged to make sure that everyone receives some type of notice when the new Octagon is available electronically on the website. It has always been published on time, but the email communication part has proven to be a bit of a challenge. We are hammering out the details, but are updating several different email lists to ensure as many members as possible receive personal emails letting them know to check the web page for updated information. I am also personally making an effort to contact at least one representative at each of the universities or industrial locations that have a few members. If you know of anyone who is not getting updates or would like updates at a different (or multiple) email addresses, please let us know and we will keep updating our lists. In the meantime, you can do your part by mentioning upcoming events to fellow coworkers or students or even posting the Octagon on a bulletin board. Also, most of us have Outlook or some other calendaring system and a little pop-up reminder on the 10th or 11th of each month is easy to put in place and would be a good way to remind you to check up on upcoming events.

Thank you for your renewed enthusiasm in the Section and I look forward to an exciting year at all of our upcoming events!

Chester Crane  
6411 Martins Creek-Belvidere Highway  
Bangor, PA 18013  
(610) 498-2015

### ***2009 LVACS Election Results***

**Chair Elect - William Miles**  
**Secretary - Julie Ealy**  
**Treasurer - Al Martin**  
**Councilor - Roger Egolf**  
**Alternate Councilor - Pamela Kistler**

***Congratulations and a thank you to all  
candidates for supporting LVACS***

---

***This Month in Chemical History: Part 2 -***  
*Continued from the February 2009 Issue*

Harold Goldwhite, California State University, Los Angeles - [hgoldwh@calstatela.edu](mailto:hgoldwh@calstatela.edu)

In my last column, I discussed some aspects of the book *The Chemistry of Wheat, Flour, and Bread: and Technology of Breadmaking* [is that title accurate?? I couldn't confirm] by William Jago, Analytical and Consulting Chemist, published in 1886. Chapter 4 of this text, which follows three introductory chapters on the fundamentals of inorganic and organic chemistry, introduces the student to the use of the microscope both in measuring and sketching objects such as yeast cells. There is also a short introduction to the properties of polarized light. Chapter 5, covering the organic and inorganic components of wheat and flour, is the first to propose an experimental program. There are qualitative tests for calcium, magnesium, potassium, and phosphorus in the ashy residue obtained from calcining wheat, and a method for estimating the amount of fat in wheat meal. A substantial chapter on carbohydrates includes experiments on isolating cellulose from wheat meal (the invaluable fiber component in our nutritional labels) and excellent sketches of the microscopic appearances of starch grains from different sources, including the major baker's grains of wheat, maize, rye, and barley. Experiments on the temperature of gelatinization of starches, and on reactions of starches and other carbohydrates with iodine and Fehling's solution (only my more mature readers will recall this one, I believe) are fully described.

An important chapter addresses the transformations of the carbohydrates, including such fundamentals as hydrolysis of complex carbohydrates by "active principles," including human saliva and filtered aqueous infusions of yeast. "Chemical research shows that in each case hydrolysis is due to the nitrogenous constituents of these various agents ... it is not known, however, with certainty whether these bodies are definite chemical compounds." [ACS style and others is to not end quoted material with an ellipsis—it is understood that there may be more text] Enzymes as distinct chemical species were still unproven. Jago discusses nitrogenous constituents of grains under the

title "Albuminoids or Proteids" and includes analyses of egg albumin, blood fibrin, casein, and gluten. Fermentation is at the heart of the raising of bread dough by the action of yeast, and there is a long chapter on the subject. Jago considers the dispute between Pasteur and Liebig on the subject and comes down on the side of Pasteur, who regarded fermentation as necessarily involving the action of live organisms. A decade after the publication of Jago's book, Buchner showed the existence of "soluble ferments," that is, enzymes, which could be separated from yeast cells; consequently, intact live organisms were shown not to be essential to fermentation.

Yeast and its growth being central in breadmaking, Jago devotes much attention to the essential factors needed to foster yeast growth, including appropriate sugars, nitrogenous materials, oxygen, and minerals. His view of fermentation is sufficiently broad to include vinous fermentation, lactic and butyric fermentations, and putrefaction. Jago's own research includes new methods for establishing the strength of a batch of yeast, which involves comparing the amounts of carbon dioxide and lactic acid produced in a controlled fermentation. This 50-page chapter is an interesting technical research paper, but quite out of place in an introductory text. The following chapter is much more practical and is on how to prepare and grow a batch of yeast for either baking or brewing.

After sections on the physical and chemical composition of wheat and of flour in its various forms, we come to what to me should be the heart of the book, namely the chapter on making bread. It is sadly brief (35 pages) but covers the essentials, including brief comments on the practices of Birmingham and Manchester—somewhat different—and on Scotch Sponging, which has nothing to do with borrowing money! Jago comments that the use of potatoes in preparing dough is falling out of favor at this period; many of us home bakers swear by potato water or potatoes as a valuable ingredient in our home-made breads in keeping them moist and inhibiting staling. His bakers use quite high temperatures, some 450 to 500 °F, and bake their 2-or 4-lb. loaves from 40 minutes to 1 hour. A valuable section is on how to keep the bakehouse sanitary.

Jago's final chapter reminds us of the relatively recent concern in the 19th century for food purity and

adulterants. It covers ergot and other molds and mineral additives, particularly alum, which can “cause a loaf made from bad flour to be larger, less sodden, and whiter.” You have been warned.

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

### ***LVACS Organic Scholarship*** ***Opportunities for Students - REVISED!***

The Lehigh Valley Section of the American Chemical Society will award its annual Scholarship for Organic Chemistry this April. To be eligible, students should be below the junior level, currently enrolled in organic chemistry at an institution in the section, and a chemistry, biochemistry, or chemical engineering major. The competition entails taking the ACS Organic Chemistry Examination (50%), a letter of recommendation from the student’s organic chemistry professor (10%), and an essay on a topic in organic chemistry (40%). The value of the scholarship is \$1000. Additionally, the top essay will receive \$100. Details about the exam, letter, and essay follow below. Students should indicate their interest in the scholarship in advance of May 2 to Dr. Carol Libby at Moravian College, [cbllibby@cs.moravain.edu](mailto:cbllibby@cs.moravain.edu).

**ACS Organic Chemistry Examination:** The exam will be administered on Saturday, May 2, 2009, at Moravian College, Bethlehem, PA from 9:00-10:30 AM. Students should report to the entry foyer of Collier Hall of Science. For directions see <http://www.moravian.edu/campusMaps/northBuildings/collier.htm>. Juice and bagels will be available at 8:45 AM.

#### **Letter of Recommendation:**

Professors writing a letter of recommendation on behalf of a student who is applying for the Lehigh Valley ACS Scholarship should speak to the student’s skills in lecture and laboratory in Organic Chemistry I and Organic Chemistry II. Please provide the course grade for Organic Chemistry I and

comment on performance on written exams, proficiency in organic lab, and participation in recitations, problem sessions or course-related group work. If possible, address the student’s quantitative skills by commenting on her or his performance in quantitative analysis or its local equivalent. The letter of recommendation must be submitted in a sealed plain envelope and signed by the professor over the seal. The student will be required to bring the sealed letter to the ACS Organic Chemistry Exam at Moravian College on May 2.

#### **Essays:**

The student should choose a molecule, a group of molecules, or a process in organic chemistry to write about. The essay should be written at a level to interest and educate a general chemist who has completed sophomore-level organic chemistry. Synthesis, mechanism and structural elucidation should be covered for the chosen molecule (or representative examples of a chosen group). If a process is chosen, the physical and chemical basis for its success should be explained. Judicious use of structures is expected. The essay should address the impact of the molecule or process on society and the student’s personal interest in it. The essay should run no more than 1800 words in Times New Roman 12 point font with one-inch margins on all sides. Each page should have a header with the student’s last name, brief essay title and page number. An additional page with references must be included. References should follow the style of *The Journal of the American Chemical Society* (an article from a recent issue can serve as a model). The winning essay will be published in the *Octagon*.

#### **The essay will be rated on:**

- 40% - Appropriate depth of coverage of the molecule(s) or process.
- 30% - Appropriate depth of coverage on the impact on society and student’s interest.
- 20% - Ease of reading, including grammar, spelling, and logical flow of the material.
- 10% - Appropriate use of references.
- 5% - Adherence to the formatting rules provided.



## *Message from Madeleine Jacobs*

Dear Colleague,

I'm writing to you to ask you to take a few minutes to examine the exceptional programming offered at the ACS Spring National Meeting, March 22nd - 26th in Salt Lake City. Whether you're a student or in the early, mid, or late part of your career in industry, academia, or government, there is an exciting series of symposia with cutting-edge research advances waiting for you in the technical program. This meeting also focuses on "Nanoscience: Challenges for the Future."

For four days, Salt Lake City will be the place to learn from and engage with a highly respected cadre of accomplished scientists working in the field of nanoscience.

Professor Paul Weiss, Editor-in-Chief of ACS Nano, has organized a world class nanoscience program that includes a keynote address given by MIT Professor and materials scientist Angela Belcher; The Kavli Foundation ACS Presidential Plenary Symposium on Challenges in Nanoscience; and many exceptional nano-specific symposia integrated with the technical program sponsored by ACS Divisions, with themed symposia:

- Frontiers in Imaging Biological Nanostructures
- Nano Meets Neuro: Novel Challenges for Nanoscience in Probing Brain Chemistry
- Integrating Nanoscience into the College and High School Classroom
- Molecular Rotors and Motors
- Frontier Applications of Nanotechnology in Engineering Extracellular Matrices
- Chemical Methods of Nanofabrication
- Genetically Designed Molecular Materials

Find out more information and see the entire technical program, via the home page on our website: [www.acs.org](http://www.acs.org). Hotel rooms are still available and if you act soon, you can take advantage of the convenience of booking your hotel through ACS.

These are challenging economic times for all of us,

## *LVACS Officers - 2009*

**Chair:** Chester Crane  
6411 Martins Creek-Belvidere Highway  
Bangor, PA 18013  
(610) 498-2015 ccrane9@yahoo.com

**Chair Elect:** William Miles  
Lafayette College, Easton, PA  
(610)330-5221 milesw@lafayette.edu

**Immediate Past Chair and Secretary:**  
Julie Ealy  
Penn State University Lehigh Valley  
610-285-5115 jbe10@psu.edu

**Treasurer:** Al Martin  
Moravian College  
Bethlehem, PA 18018  
amartin@cs.moravian.edu

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

**Councilor:** Roger Egolf  
Penn State Lehigh Valley Campus  
Fogelsville, PA 18051  
610-285-5110 rae4@psu.edu

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

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

**Octagon Editor & Webmaster:**  
T. Michelle Jones-Wilson (see above)  
lvacs@ptd.net

and I know that travel budgets are tight. But if there is one meeting that you attend this year, this is the one! Emerging trends and challenges in nanoscience will impact all of us. As a scientist, this is an excellent opportunity for you to be excited, intellectually engaged, and surrounded by members who share your curiosity and passions.

Of course, you can count on ACS to deliver the exceptional meeting you depend upon from your professional society. Please, examine the program now and register to attend this extraordinary event.

I look forward to seeing you in Salt Lake City!

Cordially,  
Madeleine Jacobs  
Executive Director & CEO  
American Chemical Society

### *News from National ACS*

### *Advance Your Career with Short Courses Brought to You by the ACS*

Early Registration Ends April 6, 2009 for Courses in Boston, MA

In a tight job market, education is power. The ACS Short Course Circuit in Boston, MA, May 17-22, 2009 gives you a great opportunity to advance your career and invest in your future. Short Course Circuits provide you the chance to take advantage of a wide range of our course offerings in a single location and network with fellow scientists. Visit our website for complete details.

#### **Courses in Boston, MA:**

- Fundamentals of High Performance Liquid Chromatography May 17-18
- Chemical Engineering for Chemists May 18-19
- Introduction to Modern Mass Spectrometry May 18-19
- Drug-like Properties in Drug Discovery May 18-19
- Process Research in the Pharmaceutical Industry May 18-19

- Laboratory Safety & Health May 18-20
- Essentials of Biochemistry for Drug Hunters May 20-21
- Organic Synthesis: Methods and Strategies for the 21st Century Chemist May 20-21
- Pharmacokinetics and Pharmacodynamics: Principles and Applications in Pre-Clinical Drug Development May 20-21
- Dispersion in Liquids: Suspensions, Emulsions, and Foams May 20-21
- Formulation Development and Drug Delivery Systems May 20-22

#### **The ACS is also holding a short course circuit in Durham, NC, May 4-7, 2009:**

- Chemical Engineering and Process Fundamentals for Chemists May 4-5
- Pharmacokinetics and Pharmacodynamics: Principles and Applications in Pre-Clinical Drug Development May 4-5
- Polymeric Coatings May 4-5
- Laboratory Safety May 4-5
- Experimental Design for Productivity and Quality in Research & Development May 4-6
- Statistical Analysis of Laboratory Data May 4-6
- Ecological Impact of Chemicals May 6
- Recent Developments in Organic Synthesis May 6-7
- Effective Supervision of Scientists and the Technical Staff May 6-7
- Analysis and Interpretation of Mass Spectral Data May 6-7
- Methods Development, Validation Procedures, and Conformity Assessment in the Analytical Laboratory May 6-7

**Can't Travel?** Check out our catalog of webcast courses that you can take from your home, office or lab! Or attend a free online micro-course to find out if online learning is right for you and your team. Chemicals: Assessment of Their Ecological Impact, is being held on March 24th at 3 pm. Email [acswebcasts@acs.org](mailto:acswebcasts@acs.org) for access information.

For over 30 years, ACS Continuing Education has been a respected source for chemists who wish to advance or update their skills. We offer courses and webcasts on a variety of topics throughout the year,

and in a number of locations. Please visit us online at [www.acs.org/shortcourses](http://www.acs.org/shortcourses) to see everything we have to offer, or contact us at 1-800-227-5558 X4508 or via email at [shortcourses@acs.org](mailto:shortcourses@acs.org).

*The Women Chemists Committee is pleased to announce two news items:*

**Fall/Winter 2009 WCC Newsletter featuring:**

- A Note from the WCC Chair
- A Note from the WCC Immediate Past Chair
- Anna J. Harrison, First Female ACS President
- Metals in Biochemistry
- The Merck Index 2008 Women in Chemistry Scholarship Results Announced
- WCC Open Meeting
- Scholarship in Honor of Priscilla Carney Jones
- Women in Chemical Technology Professions
- Successful Women in Chemistry
- WCC Luncheon
- Spring 2009 Travel Awardees
- Gender and Workforce Studies
- 2008 WCC ChemLuminary Awards

**WCC Events at the Spring 2009 ACS National Meeting**

**Saturday, March 21**

WCC Open Meeting and Local Section Reception, "Networking: Crossroads and Connections"  
Cosponsored by the ACS Salt Lake Section  
5:00 p.m. - 6:30 p.m.  
Salt Palace Convention Center, Room 151B/C

**Monday, March 23**

WCC Women in Industry Breakfast (Ticketed Event), "Nano Meets Network: Why Professional Networking is Like Nanotechnology"  
7:30 a.m. - 9:00 a.m.  
Salt Palace Convention Center, Ballrooms H & J

Alternative Energy Sources: Women at the Forefront of Science Symposium  
Cosponsored by PROF  
9:30 a.m. - 12:40 p.m.  
Hilton City Center, Canyon C

Sci-Mix Poster Session: Utilizing the X Factor: Empowering the Next Generation of Women Chemists

Cosponsored by PROF and CHED

8:00 p.m. - 10:00 p.m.

Salt Palace Convention Center, Hall 5

**Tuesday, March 24**

WCC/Eli Lilly Travel Award Poster Session and Reception

11:00 a.m. - 12:00 p.m.

Salt Palace Convention Center, Exhibit Hall 1

WCC Luncheon (Ticketed Event), Speaker Kathlyn Parker, 2009 Garvan-Olin Medalist

12:00 p.m. - 1:30 p.m.

Salt Palace Convention Center, Exhibit Hall 2


ACS Award for Encouraging Women into Careers in the Chemical Sciences: Symposium in Honor of Mary F. Singleton

Cosponsored by HIST, PROF, and CEPA

2:00 p.m. - 4:50 p.m.

Marriott Downtown, Salon A

For more information on the Women Chemists Committee, visit <http://membership.acs.org/W/WCC/>.



***LVACS  
has a New  
Email Address!***

You may have noticed that your Octagon notification came from [lvacs@ptd.net](mailto:lvacs@ptd.net) this month. In an effort to address some of the problems with email communication we have moved the account. Please update your address

## **Undergraduate Research Poster Session**

Sponsored by  
The Lehigh Valley Section of The American Chemical Society

**April 28, 2009**

**Moravian College**

**5:00-6:15 PM**

Preceding the 808<sup>th</sup> meeting of the Lehigh Valley Section of the ACS  
(Meeting details will be published in the April Octagon at [www.esu.edu/lvac](http://www.esu.edu/lvac))

### **Who may participate?**

Undergraduates attending a college or university within the Lehigh Valley section of the ACS. Research may have been done at the student's home institution with a chemistry or chemical engineering faculty member or during a summer research experience elsewhere.

### **To participate**

Submit an abstract by **April 20, 2009** as a Microsoft Word attachment to an email to [cblibby@cs.moravian.edu](mailto:cblibby@cs.moravian.edu). Please indicate "LVACS Poster Session" in the subject line of your email header. Early submission is encouraged.

### **Abstract format**

Times font

TITLE (all capitals)

Authors' names, authors' institutions and addresses

Abstract of research, 150 words maximum

### **Travel Award**

One poster session participant will be chosen to receive a \$250 award to support travel to present research at a national or regional ACS or AIChE meeting.

### **Other requirements and information**

Speaker after dinner to be ACS Director Valerie Kuck who will provide practical advice for succeeding in the job market.

Poster presenters must provide their own pins and poster board. Easels will be provided for displaying the posters.

Abstracts will be acknowledged by an email message that will include details about meeting room, set-up time, and the travel award.

If you do not get a response within two days of abstract submission or you have any other questions, contact Carol Libby, [cblibby@cs.moravian.edu](mailto:cblibby@cs.moravian.edu), 610-861-1629

If you do not get a response within two days of abstract submission or you have any other questions, contact Carol Libby, [cblibby@cs.moravian.edu](mailto:cblibby@cs.moravian.edu), 610-861-1629



# Undergraduate Research Travel Award



## \$250

Sponsored by  
The Lehigh Valley Section of The American Chemical Society

### **Purpose**

The prize must be used to help defray expenses associated with presentation of undergraduate research at a national or regional meeting.

### **Eligibility**

Student must present research at the Undergraduate Research Poster Session, to be held at the April 28, 2009, meeting of the Lehigh Valley ACS. Undergraduate Research Poster Session details available at <http://www.esu.edu/lvacs>. The winner will be chosen by lottery.

### **What the award can be used for**

The award must be used between March 22, 2009\* and April 28, 2010 to pay for travel, registration, or accommodations associated with attending a national or regional American Chemical Society or American Institute of Chemical Engineers (AIChE) conference to present *research* carried out as an *undergraduate* (or the summer after you graduate if you receive your B.A. or B.S. this spring).

Visit these websites for possible meetings that you might attend. Speak to your advisor soon about the possibility of presenting at a national or regional meeting. Note that abstract submission deadlines are far in advance of the actual meeting, so it's not too soon to begin planning.

<http://www.acs.org/> (Meetings tab)

<http://www.aiche.org/>

<http://www.aiche.org/Students/Conferences/index.aspx>