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# THE OCTAGON



Volume 88, No. 3, March 2005

Lehigh Valley Section of the American Chemical Society

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## *Meeting Announcement:*



### *778<sup>th</sup> LVACS Meeting:*

*East Stroudsburg University at Pocono Brewing Company*

*Wednesday, March 23<sup>rd</sup>*

*~ PUB NIGHT ~*

**Please join us at PBC for the first annual LVACS pub night. Pocono Brewing Company has more than 70 beers on tap including several house brews. If that isn't enough more than 200 bottled beers are available. For those interested, PBC will provide a beer sampling. We will have use of the game room during our reception and will enjoy dinner and our meeting in the pub loft. A private bar will be available for your enjoyment during dinner. Dress is casual, so dress on down! PBC is an easy drive from the Lehigh Valley. Check out the PBC webpage at <http://www.poconobrewingcompany.com/>**

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**Beer Tasting Reception:** 6:00 PM including pool, darts, and video/pub games\*

**Dinner:** 7:00 PM

**Meeting and Talk:** 8:00 PM

**Location:** Pocono Brewing Company (PBC) Rt. 611, Swiftwater, PA

**Menu:** Traditional Pub appetizers- chicken wings, beer battered onion rings, potato skins, chips and salsa.

Buffet style dinner featuring prime rib and penne ala vodka. Sides items include house salad, green beans almondine, and roasted red bliss potatoes.

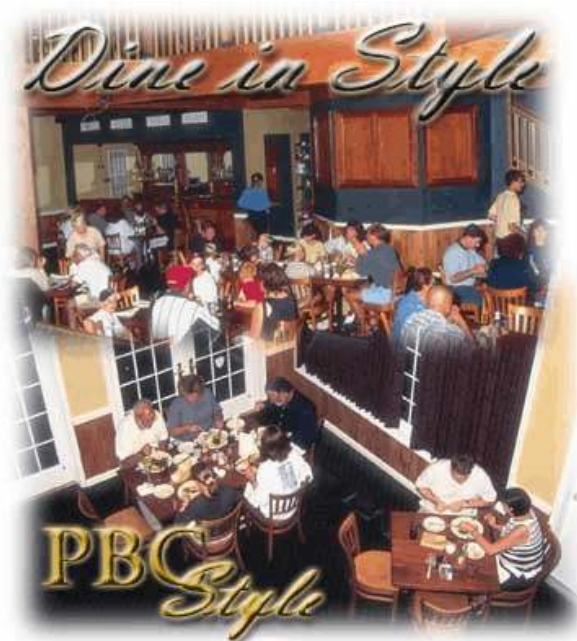
Dessert - choice of lemon supreme cake with lime filling and vanilla whipped cream icing or Kaluha chocolate cake with raspberry filling and mocha frosting .

Beverages- unlimited non alcoholic beverages. Open cash bar will be available.

**Cost:** \$26.00 for members

\$13.00 for students

\$6.00 for beer tasting



**Note:** You must be over 21 to participate in the beer tasting. Proper ID will be required.

**Contact:** Michelle Jones-Wilson, 570-422-3703 or [mjwilson@po-box.esu.edu](mailto:mjwilson@po-box.esu.edu) by Wed., March 16. Please indicate name and affiliation.

**Carpooling:** We will help to organize those who wish to carpool. Please contact the host above or Tara Baney [tara\\_baney@merck.com](mailto:tara_baney@merck.com), 215-652-7486

**Directions:** 33 North to 80 west. Exit at rt.611 Scotrun. Make a left at the end of the ramp and travel N on 611 to PBC on the left. Map available at <http://www.poconobrewingcompany.com/>

### **Talk: Automation: From Drugs To Wine and Beer**

**Speaker: Adam M. Fermier, Ph.D.**, J&J Pharmaceutical Research and Development

Adam M. Fermier started working as a carpenter in his early career and then worked in a machine shop to earn some money to get him through school. He received his bachelor's degree in chemistry from Delaware Valley College in 1993. He earned his Ph.D. in analytical chemistry from the State University of New York at Buffalo in 1997, where he specialized in column technology and detection in capillary electroseparation techniques. After a postdoctoral appointment in 1998 at Johnson & Johnson's R.W. Johnson Pharmaceutical Research Institute, he accepted a position later that year as Senior Scientist in the Spectroscopy/Drug Chemistry/New Technologies Group in Drug Evaluation. Dr. Fermier quickly established himself as an innovative scientist seeking automated solutions to the routine tasks in the development laboratories, and was promoted to Principal Scientist in 2001. His work focuses on laboratory automation where he pulls the knowledge gained through his carpentry and machine shop experiences to facilitate the automation workflows. He has designed and implemented a degradation robot (JABA), a crystallization workstation, and a weighing/sample preparation robot. He has shared his work with the scientific community in 12 written publications, one book chapter, 51 presentations, two issued patents, and four patents pending.

### **Abstract:**

Automation is being introduced into every aspect of our lives including the laboratory. The term automation describes any process that helps minimize human interactions. From a laboratory standpoint, a lot of bench top practices are being automated to provide unattended pipetting, weighing, stirring and temperature control. With these basic functions, we have automated processes in both academic and pharmaceutical labs and even in our home brewery. Academically, the introduction of automation to students prepares them for

advanced research in university and industrial labs and a productive career in science. Automation of sample preparation methods traditionally done by hand in the laboratory is one area of focus. At Muhlenberg College, students have been directly involved in the development and optimization of new automated sample preparation methods using robotic workstations including the solid phase extraction of antioxidants in wine prior to chromatographic analysis. The automated extraction is more reproducible and has higher extraction efficiencies than manual methods. In pharmaceutical laboratories the practice of converting manual to automated processes is very similar. The first step of automation is to understand the manual process, then answer the question; can the process be automated? Often the answer is yes; it just takes time and money. Two automation platforms will be discussed here. The first system is a crystallization-screening platform for small molecules. This system is based on liquid handlers that ultimately mix hundreds of different solvent conditions within a few hours. The plates are then incubated and set aside to monitor crystal growth. Once crystals are identified, the stability of the compound needs to be determined. Stability for pharmaceutical products is typically a 2-year shelf life at room temperature. To help predict shelf lives, reactions are set up at elevated temperatures in various formulations and rates of degradation monitored. A robotic system was built to stress samples in 2 mL auto sampler vials. These vials are heated or exposed to light then moved to a cold block, simulating the process of removing samples from ovens and humidity chambers back to a refrigerator. Multiple reactions can be run simultaneously and in 2004, over 25 compounds were processed. We were able to take advantage of the temperature control software built for the degradation robot and use it in our basement brewery. Built over the past 5 years, the system is capable of temperature control of the brew tanks through a computer interface. Temperatures are logged into a tab-delimited sheet every 2 minutes, which can be plotted in excel. The process has provided excellent control and some good results. The talk will demonstrate the broad impact of automation from academia, industry and even our home brewery.

### **Remaining 2004-2005 LVACS Meetings**

**April 27-** Moravian University - *Student Poster Session*

**May** - DeSales University - *High School Teacher's Night*

## ***LVACS Officers - 2005:***

**Chair:** Tara Baney  
Merck & Co., Inc. West Point, PA 19486  
[tara\\_baney@merck.com](mailto:tara_baney@merck.com) 215-652-7486

**Chair Elect:** T. Michelle Jones-Wilson  
East Stroudsburg University  
East Stroudsburg, PA 18301  
[mjwilson@po-box.esu.edu](mailto:mjwilson@po-box.esu.edu) 570-422-3703

**Immediate Past Chair:** Steve Weiner  
Bachem Americas  
[steve.weiner@usbachem.edu](mailto:steve.weiner@usbachem.edu)  
610-239-0300 x140

**Secretary:** Paul Bouis  
Mallinckrodt Baker Inc., Phillipsburg, NJ 08865  
[paul.bouis@tycohealthcare.com](mailto:paul.bouis@tycohealthcare.com) 908-859-9443

**Treasurer:** Roger Egolf  
Penn State LV Campus, Allentown, PA 18051  
[rae4@psu.edu](mailto:rae4@psu.edu) 610-285-5110

**Councilor:** Carol Baker Libby  
Moravian College, Allentown, PA 18018  
[cbllibby@cs.moravian.edu](mailto:cbllibby@cs.moravian.edu) 610-861-1629

**Councilor:** Pamela D. Kistler  
Cedar Crest College, Allentown, PA 18104  
[pdkistler@cedarcrest.edu](mailto:pdkistler@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)

the chorus of Happy Birthday. I appreciate the sentiment. Gals night out was a blast.

Our meeting for March will showcase the tasty brews of the Pocono Brewing Company, along with a talk on brewing beer. You will not regret the short drive to the beautiful Pocono area. April will bring our talented students from area colleges/universities together with their research. May we will honour our high school teachers. A great line-up of meetings, and I look forward to seeing you all there.

Some items of importance to review with all of you:

We want you to volunteer!!! There are a number of events coming up, and we have a huge section of very talented individuals who can make these events successful. A listing includes:

1. Chemagination-science essay and poster contest for 9-12 grade high school chemistry students-For contests this school year, please select a coordinator very soon!!

<http://chemistry.org/chemagination>

2. Chemists Celebrate Earth Day-April 22, 2005, Theme: Air-Here, There, Everywhere - an environmental awareness campaign to emphasize contributions made through chemistry in preserving our planet.

<http://chemistry.org/earthday>

3. National Chemistry Week-October 16-22, 2005, Theme:

The Joy of Toys-an opportunity for outreach to the community and to share your passion for chemistry with the public. <http://chemistry.org/ncw>

4. Chemists in the Library-a way to interact with the public through a different venue and facilitate an alliance between libraries and area chemists.

<http://chemistry.org/oca>

We need a group to help us – every little bit counts!! If you can volunteer for one day, or provide information via email, or even be a contact person, please let me know. We can enlist the talents of our students from the Chapters we have at each academic institution as well. I'm sure our Student Chapters will have festivities for Earth Day and National Chemistry Week. Why not combine our resources and ideas?

1. We are looking to have panel discussions on women's issues in chemistry & mentoring. Our section is lucky to have a large portion of our membership with many years in the ACS. The diversity of careers, ability to change with knowledge and technology, reflecting on a great life of chemistry, what a treasure we have! If you or someone

## ***Greetings Fellow LVACS Members!***

*from Chair Tara Baney*

Spring is in the air, isn't it?? As I write this while it's snowing madly outside the Brown Laboratory Building on the University of Delaware campus. Spring **\*\*was\*\*** in the air, and it will be back. I hope you enjoyed our February meeting. We had a wonderful selection of cheese and wine to savour, the meal was fantastic, and Sharon provided us with a wealth of information on dairy products. Overall it was a pleasant evening. And to those of you who attended, thank you (and of course Charlie) for

you know would like to be a member of a panel, contact me. You will provide mentoring and insight to many.

2. Picnic Committee – we are going to have our Second LVACS picnic this August, and I would like to give others an opportunity to organize. We will have it at Louis Moore Park again, as it is a beautiful area and conveniently located.

3. Officers!!!! Consider running. It's fun, doesn't take up much time, and hey, you get to put it on your resume

What else can be said?? Well, what I said in January (bears repeating):

As always, we are here and will listen to your thoughts, ideas, and action plans for our section. We have a truly great group of people, and we can learn and grow from one another. Think about what you want from this section, and how it can happen. Let's plan and do it, okay?

I look forward to seeing you, meeting you, and interacting with you.

Cheers,

Tara S. Baney, Chair

Email: [tara\\_baney@merck.com](mailto:tara_baney@merck.com)

Phone: 215-652-7486

### ***How much do you pay for a good meal?***

*from Chair-Elect Michelle Jones-Wilson*

When you go out for dinner, how much do you pay for a dinner that includes your beverage, appetizer, salad, entree, sides and dessert? Most entrees at a moderate restaurant cost between \$9 and \$15 and appetizers and desserts run between \$4 and \$8 each. Add to that your beverages and you really can't get out of a restaurant for less than \$25 not including the gratuity. So why am I providing a culinary account statement? I wanted to let you know that the wonderful complete dinners that are a part of our LVACS meetings are really quite reasonable when one considers the cost of a meal on the town. The meals accompanying our meetings are generally excellent, and I don't believe many leave hungry. We make every effort to keep the cost of the evening reasonable so that everyone can enjoy a quality experience. The section subsidizes the dinners, and student and retiree meals are offered at half price. The remainder of the meeting bills are part of the section's operating budget. In fact, the cost of meals to members has remained fairly constant over the past 5 years, even though meal costs have increased.

If you have ideas of ways to keep our dinners good, our meetings fun and informative while reducing costs, any of your officers would be glad to hear them. Our goal is to provide a good experience and an opportunity to network and share our science. I hope that you will join us at our

March meeting for a good meal in a relaxed and fun atmosphere!

### ***Position Announcement - Analytical Scientist QS Pharma***

QS Pharma is a three year old research organization that has grown to a staff of 30. We have existing needs for additional scientific staff. Additional details about QS Pharma can be found at [www.qspharma.com](http://www.qspharma.com).

This is a hands-on position involved in all facets of analytical support for pharmaceutical product development. Responsibilities include: instrument calibration and maintenance; analytical method development and validation for active pharmaceutical ingredient (API) and drug product; analytical testing to support product development and drug discovery; and serving as a technical and scientific resource to other departments within the company. Requires B.S. in Chemistry, Biochemistry, Medical Technology, or equivalent with 0-5 years of industrial pharmaceutical laboratory experience. Knowledge of experiment documentation, HPLC method development and validation, HPLC troubleshooting and an understanding of GMP, GLP and ICH guidelines desired. Other desired skills include dissolution, UV-VIS, KF, particle size analysis, thermal analysis and headspace GC. Requires a strong attention to detail, a keen sense of urgency and excellent communication and interpersonal skills to interact effectively with co-workers and customers.

Contact: Michael B. Maurin, R.Ph., Ph.D.

Cofounder & Vice President

QS Pharma™ 3 Chelsea Parkway, Suite 305

Boothwyn, PA 19061

Phone: 610-485-4270 extension 13 Fax: 610-485-5933

### ***Question of the Month***

In keeping with our March beer theme . . .

All beers were dark or cloudy until 1842. By what method (processing) are modern beers clarified?

*Come to the March meeting - hoist a pint - and try your luck at an answer!*

## **Undergraduate Research Poster Session**

Sponsored by

**The Lehigh Valley Section of The American Chemical Society**

**April 27, 2005**

**Moravian College**

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

Preceding the 779th meeting of the Lehigh Valley Section of the ACS  
(Meeting details will be published in the April Octagon)

### ***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 18, 2005, as a Microsoft Word attachment to an email to [cplibby@cs.moravian.edu](mailto:cplibby@cs.moravian.edu). Please indicate "LVACS Poster Session" in the subject line of your email header.

### ***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 meeting.

### **Abstract format**

Times font

TITLE (all capitals)

Authors' names, authors' institutions and addresses

Abstract of research, 150 words maximum

### **Other requirements and information**

Poster presenters must provide their own pins and poster board (preferably 30 x 40 inch foam core, available at A. C. Moore, Michael's craft stores, or art supply dealers). Easels will be provided for displaying the posters.

"Tips for Effective Poster Presentations" can be found in Chapter 2 of the ACS Style Guide (2<sup>nd</sup> Edition).

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, [cplibby@cs.moravian.edu](mailto:cplibby@cs.moravian.edu), 610-861-1629

**This announcement can be found at  
<http://www.esu.edu/lvacs/>**



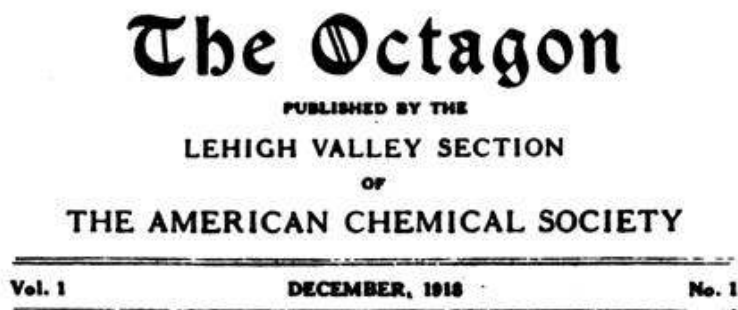
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## Reflections on the Past: Origin of the Name Octagon

Submitted by James J. Bohning, Lehigh University [jjba@lehigh.edu](mailto:jjba@lehigh.edu)

**Editors Note:** This article was inadvertently truncated in the January Octagon. Apologies to the Author. It has been reprinted in its entirety.

At the November 2004 meeting of the LVACS, Professor James Sturm of Lehigh University asked about the origin of the name Octagon that is used for the Section's publication. Professor Sturm recalled that the name was derived from the Bessemer converter. The following is quoted from the very first issue of the *Octagon*, December 1918.



“In seeking a name for our bulletin, we naturally think of the hexagon and retorts of the Chemical Warfare Service, but when these were selected for our insignia we must have been infected with the germ *teutonicus*, because the hexagon formula of benzene was first suggested by the German [August] Kekulé, and by the derivatives of benzene the Germans made their boasted progress in the great dye industry. As to the retorts, they are made in Germany, but not elsewhere, and even under the pressure of war demands, this form of apparatus is not being made in America. The retort is therefore a symbol of our former dependence upon Germany.



[Chemical Warfare Service Insignia uniform pin, from the author's collection]

“If we are to choose a name significant of America's contribution to Chemistry we might take the *octagon*, as having roughly the outline of the section of a Bessemer converter. The process was discovered by an American – Kelly – in 1852. The underlying theories of metallography were also made by an American – [J. Willard] Gibbs. These discoveries in chemistry were fundamental and far-reaching in their practical results and they have contributed far more to the world's progress than have benzene and the aniline dye industry. Finally, the converter is particularly suggestive of those industries of the Lehigh Valley which are most typical of its life.”

With the armistice ending World War I just a month old, this decidedly anti-German sentiment appearing in an area with a strong German cultural heritage reflects the state of chemistry at the time. This is addressed in a little book in the author's collection titled “Insuring the Tomorrow of the American Chemical Industry” published by The Literary Digest in New York in 1919 (no author stated). “Before the war the entire civilized world knew that Germany was the one place for dyes, chemicals, and chemical stone and earthenware. The knowledge that Germany was supreme in the chemical field was not made known in six months or a year. It was the culmination of years of effort on the part of the great German chemical houses. “In 1914 America was cut off from German dyes and chemicals. What the American chemical industry has done to make America and the rest of the world independent of Germany for dyes and chemicals is a matter of history and is treated briefly in this book.”



This sentiment is also evident in a series of resolutions on reconstruction passed at the November 1918 meeting of the LVACS. These included the following. "Whereas the English speaking people possess one-half of the wealth of the world and number a majority of the world's enlightened people, it is intolerable that the best handbooks and compendium of knowledge are published in other languages. Therefore it is resolved that we seek a remedy for this situation in a cooperative effort between the English speaking peoples in a great expansion of our scientific literary treasure."

Incidentally, the *raison d'être* for the *Octagon* is quite interesting. "Our section is not centered in a single large city as is the case with many sections, so that there is great need for a means of communication, particularly with the members who rarely get to meetings."

### ***LVACS Organic Chemistry Scholarship***

The Lehigh Valley Section of the American Chemical Society's Scholarship for Organic Chemistry Competition takes place on Saturday April 30, at Cedar Crest College, 100 College Drive, Allentown, PA, 18104, 9:00 AM-10:30 AM in Alumni Hall, room 212. 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 for the letter and the essay follow below. The student should be below the junior level currently enrolled in organic chemistry attending college at an institution in the section. The student also must be a chemistry, biochemistry or chemical engineering major. Students should indicate their interest in the scholarship in advance to Julie B. Ealy or Carol Libby at the addresses below.

Julie B. Ealy  
Penn State University  
8380 Mohr Lane, Academic Building  
Fogelsville, PA 18051  
Email: [jbe10@psu.edu](mailto:jbe10@psu.edu)

Carol Baker Libby, Ph. D.  
Department of Chemistry  
Moravian College  
1200 Main Street  
Bethlehem, PA 18018  
Email: [cblibby@cs.moravian.edu](mailto:cblibby@cs.moravian.edu)

### Letters of Recommendation.

When writing a letter of recommendation on behalf of a student who is applying for Lehigh Valley ACS Scholarship, please speak to the student's skills in lecture and laboratory from Organic Chemistry I and Organic Chemistry II. In addition to performance on written exams and a course grade for Organic Chemistry I, it would be helpful to comment on the student's proficiency in organic lab and his or her participation in recitations. We would also like, if possible, the letter to address the students' quantitative skills by commenting on their performance in quantitative analysis or its local equivalent. Please place your letter of recommendation in a sealed plain envelope and place your signature over the seal. The student will be required to bring the sealed letter to the ACS Organic Chemistry Standardized Exam on April 30, 2004.

### Essays.

The student should choose a molecule, a group of molecules or a process in organic chemistry. The essay should address the development of the molecule or process including its synthesis or structural elucidation for a molecule or a representative molecule of a group or a number of examples and mechanism for a process. 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 the process or molecule. The essay should run approximately 3 pages  $\pm$  a quarter page of text not including figures in times new roman 12 point font or equivalent with 1 inch margins on all sides. The student's name and page number should appear in the header of each page. An additional page with references should be included. References should be presented as end notes according to the style of the Journal of Biological Chemistry (See <http://www.jbc.org/misc/ifora.shtml>).

The essay will be rated on:

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