

THE OCTAGON



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Lehigh Valley Section of the American Chemical Society

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770th LVACS Meeting:

The LVACS, Cedar Crest College, and Air Products and Chemicals, Inc. are proud to present:
Spouses Night/Winery Tour

Date: Thursday, March 18

Location: Blue Mountain Vineyards and Cellars,
7627 Grape Vine Drive, New Tripoli, PA 610-298-3068

Time: 6-9 p.m.

Event: Join hosts Vickie and Joe Greff, owners of the Blue Mountain Vineyards and Cellars for hors' d'oeuvres and a buffet supper, a tour of the winery and the process of winemaking, and a sampling of wines produced at Blue Mountain Vineyards and Cellars.

Menu: Hors' d'oeuvres include a cheese tray with assorted crackers and mustards, and a fresh fruit tray. A vegetarian pasta buffet dinner will include: Penne Pasta Primavera, Cheese Tortellini, Eggplant Parmesan, many different sauces, Mixed Greens with House Vinaigrette, Garlic Bread, and Brownies for Dessert. In addition to the fine wines served, there will be non-alcoholic beverages as well.

Cost: \$22.00, \$11.00 for spouses of members, students and retirees. Should those eligible for a discount pay full price, the difference will be donated to the LVACS scholarship fund. (Note that all persons must be 21 or over to attend this event, valid ID will be required)

Contact: Please contact Diane Molchany, Science Secretary at Cedar Crest College, (610)-606-4611, or by email: dkmolcha@cedarcrest.edu. Deadline for reservations: Thursday, March 11 4:00 p.m.

Directions to the Blue Mountain Winery can be found on the web at:

<http://www.bluemountainwine.com/directions/index.html>.

LVACS Officers - 2004:

Chair: Steve Weiner

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Look For LVACS on the web at www.esu.edu/lvacs

February Meeting Minutes

The 769th meeting of the LVACS was called to order by Chair Steve Weiner at 7:12 PM on Wednesday, February 18, 2004. Kutztown University hosted the event. Steve welcomed everyone and introduced the current LVACS Officers:

Position	Name
Chair	Steve Weiner
Immediate Past-Chair	Paul Bouis
Chair-Elect	Tara Baney
Secretary	David Skee
Treasurer	John Freeman
Councilor	Carol Baker Libby
Councilor	Pam Kistler
Alternate-Councilor	Roger Egolf
Alternate-Councilor	Michelle Jones- Wilson

Steve introduced Natalie Foster, member of the PROGRESS Steering Committee. Natalie discussed the PROGRESS project and the seven programs that are a part of it.

PROGRESS

Partnerships, Reflection, Openness, Grants, Resources, Education, Site Visits, Successes

PROGRESS is a three-year pilot project created by an ACS Presidential-Board Task Force to Study and Make Recommendations on Issues Related to Women in the Chemical Professions. Seven programs make-up the PROGRESS Project. And each program is designed to encourage and support the advancement and full participation of early- and mid-career women chemists and chemical engineers in the chemical workplace.

The seven programs that make up the PROGRESS project include:

1. Corporate Recognitions
2. Web-based Resource Center
3. Be Visible Lectureships: Encourages PhD schools to bring in women chemists as guest speakers.
4. Thriving in the Workplace Roadshows
5. GROW Grants: Funds for professional courses.
6. ACS Business & Leadership Course Academic Awareness/Site Visits: 10 institutions visited so far.
7. A corporate award for developing women faculty and students.

Steve announced that retirees will be able to attend “spouse’s night” for half-price on Thursday, March 18th at Blue Mountain Vineyards. Those that pay the full cost of the event will have half of those funds applied towards the LVACS Scholarship Fund. Steve also thanked Cedar Crest College and Air Products and Chemicals, Inc. for aid in sponsoring the “spouse’s night” event.

Next, Steve announced the LVACS Undergraduate Research Poster Session that will be held at Moravian College on April 22, 2004 during which a \$250 travel award will be given. He also announced the LVACS Organic Chemistry Competition for rising juniors that will be held at Muhlenberg College on April 24, 2004 during which a \$1,000 scholarship and \$100 best essay will be awarded.

Paul Bouis announced the Foundation in Chemistry Award (\$1,000), which is due April 5, 2004.

The speaker for the evening was Dr. Phyllis Leber, and the title of her presentation was “A Chemical Odyssey”¹. Dr. Leber began by thanking everyone for the invitation to speak. She then began the talk by discussing the topic of “Women in Chemistry”.

Dr. Leber presented a graphic, which indicated the percentage of degrees awarded to women PhD. Chemists from 1929-1998. Interestingly, there were more PhD.'s awarded to women chemists in 1929 (10%) than in 1933 (5%) or 1940 (2%). After 1940, there was a steady increase in the number of women being awarded PhD.'s in chemistry and by 1998, 31% of PhD.'s in chemistry were awarded to women.

The next topic presented by Dr. Leber was on "Undergraduate Research". The importance of undergraduate research was discussed as it challenges faculty to remain current in their fields and prepares students for the future. She also presented testimonials from some of her students where they indicated how undergraduate research experience benefited them. Some of the experimental facets of her research were also quantified as 80-90% characterization and 10-20% thermal kinetic studies by GC and NMR.

Next, Dr. Leber presented her research on "Thermal Reactions of Vinylcyclobutanes" (emphasis on the gas phase), where she discussed [1,3]Sigmatropic rearrangements, Conservation of Orbital Symmetry and the Woodward-Hoffman Rules. Conclusions² were:

Conformational opportunity, not orbital symmetry, is the dominant factor in controlling reaction stereochemistry.

Relative stability of competing products influences the si/sr ratio.

Methyl substitution (versus a deuterium label) slows down internal rotation, thus altering the stereospecificity.

Dr. Leber then briefly presented some of her research on "Plant Cholinesterase" as part of a biochemistry collaboration. She then concluded her talk by acknowledging her colleagues and paid tribute to her former students by showing pictures of them and described what they are doing now. She entertained questions at the end.

Steve presented Dr. Leber with a gift of the section's appreciation. Steve then asked for an answer to the "question of the month". The answer was Abu Ali Ibn Sina.

The November minutes were then approved with no changes. The January meeting had been cancelled due to weather. The meeting was adjourned at approximately 8:26 PM.

¹Secretary's Note: Dr. Leber's presentation may be found at the following web link:

<http://www.fandm.edu/departments/chemistry/LeberEndowedChairFinal.htm>

²Leber, P. A.; Baldwin, J. E., *Acc.Chem.Res.* 2002, **35**.

Respectfully Submitted,

David C. Skee

Secretary, LVACS

February 23, 2004

Question of the Month:

Who was the first woman chair of the Lehigh Valley Section? When did she take office?

Come to the March Meeting for the Answer

2004 Spring Meeting Schedule

March 18- Cedar Crest College -

Winery Tour and Spouses Night

April 22- Moravian College -

Student Awards Night - Student Poster Session

May - DeSales University -

High School Teacher's Night

Undergraduate Research Poster Session

Sponsored by
The Lehigh Valley Section of The American Chemical Society

April 22, 2004

at

Moravian College

5:00-6:15 PM

Preceding the 771st 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 5, 2004**, as a Microsoft Word attachment to an email to cblibby@cs.moravian.edu. Please indicate "LVACS Poster Session" in the subject line of your email header.

Abstract format

TITLE (all capitals)

Authors names, authors institutions and addresses

Abstract of research, 150 words maximum, Times font

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.

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 or 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 (2nd Edition).
- Abstracts will be acknowledged by an email message that will include details about meeting room, set-up time, and the travel award.
- Other questions? Contact Carol Libby, cblibby@cs.moravian.edu

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

LVACS Scholarship Opportunities

Details and application forms can be found on the web at www.esu.edu/lvacs. Click on scholarships.

Organic Chemistry Scholarship

The Lehigh Valley Section of the American Chemical Society's Scholarship for Organic Chemistry Competition takes place on Saturday April 24, at Muhlenberg College, 2400 Chew Street, Allentown, PA. 9:00 AM-10:30 AM in the Trumbower Building, Room 305 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 John Freeman or Steven W. Weiner at the addresses below.

Steven W. Weiner Department of Chemistry Muhlenberg College 2400 Chew Street Allentown, PA 18104. sweiner@muhlenberg.edu	John Freeman 522 Raub St Easton PA 18042 jcf2@rcn.com
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Letters of Recommendation:

When writing a letter of recommendation on behalf of a student who is applying for Lehigh Valley ACS Scholarship, please peak 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 24, 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 or 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 students name a brief title 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:

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

Foundation in Chemistry Award

Apply today! Deadline is April 5, 2004

The Foundation in Chemistry Award is sponsored by the Lehigh Valley Section of the American Chemical Society (LVACS) to promote chemical sciences at the college level. This award, consisting of \$1,000.00 and a plaque, will be given annually to a high school senior within the membership boundary of the LVACS (Lehigh and Northampton Counties, parts of Bucks and Berks Counties, and Warren County NJ) to attend a four year college within the same territorial boundary (eligible colleges listed below), and intending to major in chemistry, biochemistry, or chemical engineering. The \$1,000.00 award will be given as a check to the student to be used to defray college expenses.

The application for this award must have completed at least one year of college preparatory chemistry, four years of mathematics and one semester of college preparatory physics by high school graduation.

The applicant will be evaluated on merit. A three-part application form is attached. The first part is a student application form requesting background information and official transcript of grades (including first semester senior year). The second part is a letter of support from the student's high school chemistry teacher. The third part is a student essay (500-word maximum) on why the student

would desire to study chemistry for a professional career.

Eligible Colleges for Awardees:

Albright College
Allentown College of St. Francis de Sales
Alveria College
Cedar Crest College
East Stroudsburg University
Kutztown University
Moravian College
Muhlenberg College
Lafayette College
Lehigh University
Penn State-Fogelsville (4 year)

The completed 3-part application must be submitted by

5 April 2004 to:

LVACS Scholarship

3875 Gloucester Drive

Bethlehem, PA 18020

Any questions about this award may be directed to:

Paul A. Bouis (610) 868-6447

Email: pbmbi@rcn.com

Notice for Retired Section Members

Beginning with the March meeting, retirees may attend dinners and events at ½ price. Should a retiree wish to pay full price, the difference will be donated to the LVACS scholarship fund.

The Nobel Prize in Chemistry 1907



From Nobel Lectures, Chemistry 1901-1921, Elsevier Publishing Company, Amsterdam

"for his biochemical researches and his discovery of cell-free fermentation"

Eduard Buchner was born in Munich on May 20, 1860, the son of Dr. Ernst Buchner, Professor Extraordinary of Forensic Medicine and physician at the University, and Friederike *née* Martin.

He was originally destined for a commercial career but, after the early death of his father in 1872, his older brother Hans, ten years his senior, made it possible for him to take a more general education. He matriculated at the Grammar School in his birth-place and after a short period of study at the Munich Polytechnic in the chemical laboratory of E. Erlenmeyer senior, he started work in a preserve and canning factory, with which he later moved

to Mombach on Mainz.

The problems of chemistry had greatly attracted him at the Polytechnic and in 1884 he turned afresh to new studies in pure science, mainly in chemistry with Adolf von Baeyer and in botany with Professor C. von Naegeli at the Botanic Institute, Munich.

It was at the latter, where he studied under the special supervision of his brother Hans (who later became well-known as a bacteriologist), that his first publication, *Der Einfluss des Sauerstoffs auf Gärungen* (The influence of oxygen on fermentations) saw the light in 1885. In the course of his research in organic chemistry he received special assistance and stimulation from T. Curtius and H. von Pechmann, who were assistants in the laboratory in those days.

The Lamont Scholarship awarded by the Philosophical Faculty for three years made it possible for him to continue his studies.

After one term in Erlangen in the laboratory of Otto Fischer, where meanwhile Curtius had been appointed director of the analytical department, he took his doctor's degree in the University of Munich in 1888. The following year saw his appointment as Assistant Lecturer in the organic laboratory of A. von Baeyer, and in 1891 Lecturer at the University.

By means of a special monetary grant from von Baeyer, it was possible for Buchner to establish a small laboratory for the chemistry of fermentation and to give lectures and perform experiments on chemical fermentations. In 1893 the first experiments were made on the rupture of yeast cells; but because the Board of the Laboratory was of the opinion that "nothing will be achieved by this" - the grinding of the yeast cells had already been described during the past 40 years, which latter statement was confirmed by accurate study of the literature - the studies on the contents of yeast cells were set aside for three years.

In the autumn of 1893 Buchner took over the supervision of the analytical department in T. Curtius' laboratory in the University of Kiel and established himself there, being granted the title of Professor in 1895.

In 1896 he was called as Professor Extraordinary for Analytical and Pharmaceutical Chemistry in the chemical laboratory of H. von Pechmann at the University of Tübingen.

During the autumn vacation in the same year his researches into the contents of the yeast cell were successfully recommenced in the Hygienic Institute in Munich, where his brother was on the Board of Directors. He was now able to work on a larger scale as the necessary facilities and funds were available. On January 9, 1897, it was possible to send his first paper, *Über alkoholische Gärung ohne Hefezellen* (On alcoholic fermentation without yeast cells), to the editors of the *Berichte der Deutschen Chemischen Gesellschaft*.

In October, 1898, he was appointed to the Chair of General Chemistry in the Agricultural College in Berlin and he also held lectureships on agricultural chemistry and agricultural chemical experiments as well as on the

fermentation questions of the sugar industry. In order to obtain adequate assistance for scientific research, and to be able to fully train his assistants himself, he became habilitated at the University of Berlin in 1900.

In 1909 he was transferred to the University of Breslau and from there, in 1911, to Würzburg. The results of Buchner's discoveries on the alcoholic fermentation of sugar were set forth in the book *Die Zymasegärung* (Zymosis), 1903, in collaboration with his brother Professor Hans Buchner and Martin Hahn. He was awarded the Nobel Prize in 1907 for his biochemical investigations and his discovery of non-cellular fermentation.

Buchner married Lotte Stahl in 1900. When serving as a major in a field hospital at Folkschani in Roumania, he was wounded on August 3, 1917. Of these wounds received in action at the front, he died at Munich on the 12th of the same month.*

*Other sources states August 13.



LVACS Chemagination Contest

LVACS is considering offering a local **Chemagination contest this spring**. We will be able to send up to four teams of high school students to compete in the Chemagination contest for the Middle Atlantic Region. This contest has the distinction of being offered during the fall national meeting of the ACS (Sunday, August 22, 2004) as a Presidential Event of ACS President, Charles Casey.

The contest will be held in conjunction with a Presidential Event on Chemistry, the Arts, and Humanities being organized by Professor Bassam Shakhshiri, featuring speakers such as Carl Djerassi, Roald Hoffmann, Oliver Sacks, Evelyn Fox-Keller, and others. These distinguished individuals will be invited to judge the contest as well. Imagine having had the chance when you were in high school to interact with someone of this caliber. What an amazing opportunity you can give to these students!!

Chemagination is a science essay and poster contest for high school students. Organizing a Chemagination contest requires a level of commitment similar to running a science fair, and can be handled by one person or a committee of interested individuals. Planning the contest, mentoring students and judging entries have proven to be outstanding opportunities for local sections to involve senior chemists, student affiliates, teachers, members of industry and academe.

Local sections select the dates for their contests before April. Sections are asked to sponsor the participation of finalists at the closest regional meeting offering a contest (in this case during the national meeting) and regional winners qualify to compete nationally. The national contest will be by video submission and is held in December, after all regional contests are over. If you would be interested in participating please contact Steve Weiner, sweiner@muhlenberg.edu.



Chemists Celebrate Earth Day April 22, 2004 What do you know about H₂O?

Members of the American Chemical Society's Committee on Community Activities invite you to participate in Chemists Celebrate Earth Day on April 22, 2004. The program is a joint effort between the ACS Committee on Community Activities, the Committee on Environmental Improvement, and the Green Chemistry Institute. Chemists Celebrate Earth Day provides volunteers with an opportunity to showcase chemistry's contributions to sustaining a healthy planet and environment as part of the annual Earth Day celebration.

The 2004 theme for Chemists Celebrate Earth Day is "What do you know about H₂O?" As part of the celebration, the American Chemical Society is sponsoring a music video competition for students in grades K-12. The contest encourages students to produce a music video best illustrating the theme "What Do You Know About H₂O?" As the unifying event, local sections are asked to participate in "Testing Rain Water" an activity designed to measure the acidity of rainwater in area communities and to compare results online to national findings. The web activity is made available through ACS collaboration with members of the National Atmospheric Deposition Program (NADP) and the ACS East Central Illinois Section. Hands-on activities, as well as a sample press release and templates, are available at <http://chemistry.org/earthday>. For additional information, contact the ACS Office of Community Activities at 1-800-227-5558, ext. 6078.

Fun Chemistry Resources on The Web by leslie.mcquire@pharma.novartis.com

Here are a number of interesting web sites related to chemistry. Most contain jokes and songs.

<http://skynet.oir.ucf.edu/~mschell/Chemistry/>
<http://www.fit.edu/AcadRes/chemistry/kwinkelyrics/frames.html>
<http://www.chem.leeds.ac.uk/delights/>
<http://www.liv.ac.uk/Chemistry/Links/links.html>
<http://www.xs4all.nl/~jcdverha/scijokes/>
http://www.xs4all.nl/~jcdverha/scijokes/3_1.html
<http://www.heptune.com/chemtale.html>
<http://www.heptune.com/geosong.html>
<http://www.chemplace.com/>
<http://www.superdeluxe.com/elemental/>
and of course two of my favorites
www.njacs.org and
www.marmacs.org.