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# THE OCTAGON

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Lehigh Valley Section of the American Chemical Society

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

**Date:** Thursday, November 18, 2004

**Location:** Penn State Univ. - Lehigh Valley Campus,  
8380 Mohr Lane, Fogelsville, PA.

**Social hour:** 5:00 PM

**Dinner:** 6:00 PM

**Menu:** House Salad, Rolls and Butter, Italian Chicken,  
Carrots, Oven-Roasted Potatoes and Strawberry Shortcake.

**Cost:** \$20.00 Members; \$10.00 students and retirees

Should those eligible for a discount pay full price, the  
difference will be donated to the LVACS scholarship fund.

**Contact:** Sue Snyder 610-285-5056, [sqs9@psu.edu](mailto:sqs9@psu.edu) by  
Friday, Nov. 12<sup>th</sup>

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

**Speaker:** James Bohning, Visiting Research Scientist and  
CESAR Fellow Lehigh University

James J. Bohning, Ph.D., is professor of Chemistry  
Emeritus at Wilkes University, where he was a faculty  
member from 1959 to 1990. He served there as chemistry  
department chair from 1970 to 1986 and environmental  
science department chair from 1987 to 1990. He was chair  
of the American Chemical Society's Division of the History  
of Chemistry in 1986, received the Division's Outstanding  
Paper Award in 1989, and has presented more than 35  
papers before the Division at national meetings of the  
Society. He was on the advisory committee of the  
Society's National Historic Chemical Landmarks Program  
from its inception in 1992 through 2001, and is currently a  
consultant to the committee. He was on the editorial  
advisory board of the centennial history of the Dow  
Chemical Company, published in 1997. Beginning in 1985  
he developed the oral history program of the Chemical  
Heritage Foundation in Philadelphia, and was the  
Foundation's Director of Oral History from 1990 to 1995.

From 1995 to 1998 he was a science writer for the News  
Service group of the American Chemical Society in  
Washington, D.C. He is currently a Visiting Research  
Scientist and CESAR Fellow at Lehigh University.

**Talk:** Life on the other side of the Hudson: The  
nineteenth-century battle for control of the American  
Chemical Society of New York

**Abstract:** The American Chemical Society (ACS) dates its  
origins to a meeting held on April 6, 1876 at New York  
University. Promises made by its founder to make the  
organization a national society with meetings held at  
various venues around the country were quickly forgotten,  
and within a decade the society was on the brink of  
extinction. Considered by contemporaries to be a local  
New York organization, the arrogant officers of the ACS  
were not concerned with making the Society an operation  
that fostered research, education and intellectual stimulation  
like its European counterparts. As membership evaporated  
and *Journal* submissions declined, the American Chemical  
Society of New York blithely continued as a "gentlemen's  
club" that virtually ignored life on the other side of the  
Hudson, smugly considering themselves the center of  
chemistry in the United States. They finally took notice  
when Harvey W. Wiley and Frank W. Clarke of  
Washington D.C. announced the formation of the  
Continental Chemical Society in 1890. For a period of  
several years the two groups were locked in a fierce battle,  
and when the dust settled Wiley was president of the ACS  
and the original ACS of New York was just a local section  
of a truly national organization. Chemists in the Lehigh  
Valley quickly seized the opportunity to make their voices  
heard, forming the fifth ACS local section in 1893 and only  
the second that was not a previously existing chemical  
organization.

**Directions:** On the web at  
<http://www.lv.psu.edu/about/directions.html>

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### ***September Meeting Minutes:***

The 773<sup>rd</sup> meeting of the LVACS was held jointly with the Philadelphia section in West Point, PA at the Merck Pharmaceutical complex on September 30. Acting Chair and current Chair-elect, Tara Baney called the meeting to order at approximately 7:30. After a brief but fascinating historical tour of the site, Tara turned the meeting over to Melissa Cichowicz, Chair of the Philadelphia section who introduced the speaker, former University of Florida professor and current ACS speaker tour member, Bob Bates to speak on "What You Always Wanted To Know About Chemicals But Were Afraid To Eat". Bob in his extremely interesting and inclusive talk, started off by covering the technology, the additives, and the hazards (both perception and reality) of foods.

He then turned his attention to the cancer producing aspects of our daily food intake and gave an estimate of the percent of risk associated with various classifications. He pointed out that natural products also contain potential cancer producing substances, not just man-made food ingredients. The risk and benefits of various foods were then discussed and a multitude of modern advertisements were shown depicting the hype to which a too often gullible public is subjected. Bob finished by covering the important role that analytical chemist have played in the formulation of foods and the regulatory control of the food industry. The meeting attended by over one-hundred individuals was adjourned at 8:45, after Bob had answered over twenty questions.

Respectfully Submitted,

Paul A. Bouis

Past Chair, LVACS 05-October-2004

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### ***Message from the Chair Elect***

For those of you who were able to attend our joint September meeting, I hope you went away with the positives that I, and those I briefly spoke to, did. Overall, the meeting was quite a success, as the highlights will show. However, first and foremost, I apologize for the difference in menu. Due to financial constraints and after consultation with officers from both sections, we had to alter the menu after publication. Insufficient communication resulted in a few dissatisfied customers from our section. Personally, that is a minor inconvenience compared to the opportunities we had (and took) that evening, but it is a lesson learned and will be remembered.

We accomplished a goal of having a joint meeting! Not only did we combine efforts with our Philadelphia Section colleagues, we also worked with the Institute of Food Technologists and a number of their members attended. I want to sincerely thank Melissa Cichowicz, Chair of the Philadelphia Section, and Libby Harper from the Philadelphia ACS Office for their invaluable expertise in planning and executing this event. I received a very nice email from Sharon Gerdes of IFT thanking us for the invitation. She was able to meet several new colleagues, and enjoyed learning a bit about Merck. We are set to discuss future joint meetings with IFT at one of their facilities, possibly having a social event / tour, as the Philadelphia Section did last year at Simon Pierce. That was a terrific event, and we were able to witness and learn the art & science of glassblowing. How terrific to bring

food science to our members, and have others willing to show us their expertise!?

In addition, the students who attended caught a glimpse of the 'real world.' From dealing with the reality of security to the beauty of industrial architecture, these students had an opportunity to talk to those of us working, living, and breathing the trials, frustrations, and joys of the jobs we love.

Our speaker, Robert Bates, was enlightening, funny, and taught us much that evening. This event was extra special to him as well. He met a colleague that evening that he hasn't seen in years. It was a great opportunity to catch up and exchange contact information – a pleasant reconnection indeed.

I also made many connections and reconnections. I was able to take time out of my schedule (in-between voice mails – it was quite a busy evening!) to talk to colleagues I hadn't seen in almost a year. I finally met Casimir Ryzewski face to face; we have been communicating

### ***2004-2005 Meeting Schedule***

**January** 18 NCC

**February** - Cedar Crest College

**March** - East Stroudsburg University -  
(*Spouses Night*)

**April** - Moravian University -  
(*Student Poster Session*)

**May** - DeSales University -

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through email for over a year, both working at West Point! My reconnection highlight; however, came while checking my voice mail. A Merck employee asked if he and his wife (a non-Merck employee) could attend the lecture. He would get plant access for his wife; he wasn't sure if our auditorium was to capacity. I, of course, left a message saying the more the merrier. It turns out this man's wife and I were bridesmaids in a friend's wedding **eight** years ago. Laura is a high school chemistry teacher, and we lost touch after that wedding. She noticed the announcement, thought she recognized me, and lo! Another lost connection found during an ACS meeting.

Overall, the atmosphere was excellent for meeting new people and catching up with old colleagues / friends. For those who just couldn't make it, try for October & November. Especially true for students, make a point to meet one new person each meeting you attend. Have a goal to introduce yourself to the speaker. Say hello to the officers of the section; get to know us and ask how you too can run for an office!

Cheers,

Tara S. Baney, Chair-Elect

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

Phone: 215-652-7486

### ***History of the LVACS***

Contributed by Jim Bohing, Lehigh University.

**Note:** *Dr. Bohing will be speaking at our November meeting. Please join us for what promises to be an interesting evening!*

### **Seventy-Five Years Ago in the Lehigh Valley Section**

The *Octagon* was already in its twelfth year of publication when the Lehigh Valley Section celebrated its thirty-fifth anniversary with a special dinner on September 25, 1929, at the Hotel Easton. The featured speaker was one of its founders, Edward Hart, then just a few months shy of his 75th birthday and in his 55th year of service at Lafayette. Five years earlier, the *Octagon* had praised Hart for his services to chemistry. "As the teacher of some thousands of youth, some of whom like [John T.] Baker and [George] Adamson and [Porter] Shimer and [Richard] Meade, have become famous chemists in our midst; as the editor and publisher of chemical books and journals which have caused Easton to become the greatest center of this complicated kind of publication in the world; as the founder of important chemical industries suggested by the names Baker & Adamson, J. T. Baker Chemical Company, the General Chemical Company, etc; as an inventor, writer and public-spirited citizen, Doctor Hart deserves what

honor we can pay him."

Under the simple title "Reminiscences" Hart began by recalling how he came to Lafayette and the tender age of 16. After obtaining the Ph.D. at Johns Hopkins, Hart returned to Lafayette, where president William Cattell insisted that Hart should teach metallurgy, even though Hart professed that he knew nothing about it. "Dr. Cattell's insistence led the young tutor to make the attempt and to this end he studied day and night—the beginning of a career which brought him into widest prominence in chemical circles." One of Hart's metallurgy students was James Gayley, who became an assistant to Andrew Carnegie and later "a high official of the United States Steel Corporation. ... He gave to Dr. Hart to be presented to Lafayette College, the building now known as the Gayley Chemical and Metallurgical Building."

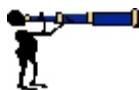
In closing his remarks, Hart lamented that so many of his friends had passed on, leaving him with a feeling of lonesomeness that he said "the younger members could not appreciate." He finished with a poem of his own composition, titled "On the Hill."

"On the Hill" the Faculty dwell  
Facing toward the sun.  
Here they live and hope to die  
When their work is done.  
The student host goes marching by  
Captains leading on.  
No one stops, all heed the cry,  
Close up the ranks, march on!

Over the hilltop blows the breeze  
Where they live and die,  
Circled round about with trees  
Overhead the sky.  
Still the student host goes by  
Captains urging on,  
No one stops, all heed the cry,  
Close up the ranks, march on!

One by one her soldiers die,  
Totter in line and fall,  
Hear no more the chapel bell,  
Death claims one and all.  
Still the student host goes by,  
Captains leading on,  
No one stops, all heed the cry,  
Close up the ranks, march on!

Edward Hart died two years later, on June 6, 1931.  
(Based on material in the *Octagon*, September 1929)



Look For LVACS on the  
web at [www.esu.edu/lvacs](http://www.esu.edu/lvacs)

### ***This Month in Chemical History***

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

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

Editorial pages and letters columns in many journals of our chemical community bemoan the fact that chemistry has become a discipline that is attracting fewer students than used to be the case. The American Chemical Society has invested money and time in the production of textbooks designed to increase the attractiveness of chemistry to students at various levels. In these discussions and actions I see little reference to an obvious change in "environment" which has had, I believe, a substantial impact on student interest in chemistry. To use a hackneyed but appropriate phrase, when I was a boy chemistry was a lot of fun. If you have read Oliver Sacks' splendid piece of autobiography "Uncle Tungsten" you'll know just what I mean; (and if you haven't read it, rush out and get hold of a copy.) I don't mean to downgrade all the safety rules and regulations that put justified barriers in the way of young people who want to buy and experiment on, let us say, concentrated nitric acid; or magnesium powder; or potassium perchlorate. Clearly those safeguards are necessary. But they may inadvertently cut off the young experimenter from some of the more entertaining aspects of our subject.

These musings are prompted by my recent acquisition of a copy of a book: **The Young Chemist: A Book of Laboratory Work for Beginners** written by John H. Appleton, A.M., Professor of Chemistry in Brown University. My copy is the second edition published by Cowperthwaite and Co. in Philadelphia in 1878. It belonged to Mary S. Anthony who attended Providence High School. Let me quote from the Preface: "Every experienced teacher has remarked the wonderful ease and pleasure with which beginners in chemistry - when they are allowed to perform experiments- grasp the facts and principles of the science." So what course of experiments does Professor Appleton recommend to beginners, under, it must be conceded, the watchful eye of a teacher, for this is a laboratory text for high schools?

The first experiment described is simple. Potassium liberates hydrogen from water. Both take fire. Such a demonstration of a fundamental chemical reaction will surely make a strong impression on a student, and I would guess that no DVD showing this result would have the

same impression as the actual experiment. This is followed by a similar experiment with sodium and hot water, to ensure that the hydrogen produced takes fire. Professor Appleton next recommends etching glass with hydrogen fluoride prepared in situ by reaction of fluorspar with concentrated sulfuric acid. And so it goes on. The student removes color from calico cloth with bleaching powder; prepares bromine from potassium bromide; prepares and sublimes iodine; burns sulfur, charcoal, and iron in oxygen; and so forth. The experiments are all qualitative; usually attractive and often spectacular; and would, I believe, interest beginners in the wonderful world of chemistry. Perhaps interest them enough to inspire them to take a further, and quantitative, course in the subject?

This small volume (110 pp.) is not without interest for the student of the history of chemistry. The Introduction is on the nomenclature and notation of chemistry. It contains a Table of the sixty-four elements with their atomic weights. Gallium is there but not germanium; beryllium is still known as glucinum; "didymium" (later shown to be a mixture of other lanthanides) is included with an atomic weight of 147. But the most interesting section is on notation. The author recommends the graphic symbols (sometimes called "sausage" symbols) of M. Kekule to represent monad, dyad, triad, and tetrad atoms or radicles (Appleton's spelling). We would call these monovalent, divalent, trivalent, and tetravalent species respectively. He also comments on glyptic symbols which we might call models. A distinction is drawn between empirical and rational formulas. Thus for nitric acid, of empirical formula  $\text{HNO}_3$ , the rational formula is given as  $\text{HONO}_2$ .

We can learn something from this nineteenth century text, not only about contemporary views of chemistry; but perhaps, also, ways in which we can help make chemistry more attractive to students?

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

Who was the youngest person ever (and a chemist to boot) to win the Nobel Prize?

*Come to the November Meeting for the Answer*

## ***AWIS- PHL Meeting Announcement***

### **What is Your EQ?**

#### **An Introduction to Emotional Intelligence**

Jackie La Piedra, MA

Organization Development Specialist

Human Resources Department, University of Medicine and Dentistry of New Jersey (UMDNJ)

Date: Wednesday, October 27, 2004

Place: Bucks County Sheraton, 400 Oxford Valley Road Langhorne, Pennsylvania 19047; (215) 547-4100

Time: 6:00 pm

Menu: Chicken Marsala or Vegetables Over Pasta Dinner includes fruit, salad and desserts

Price: Members & Guests, \$30; Students & Post-docs, \$25  
No shows, and cancellations after the RSVP deadline, will be charged the full price.

RSVP by October 20, 2004 to Suzanne McCahan [rsvp@awisphl.org](mailto:rsvp@awisphl.org) (preferred) or 302-651-6817

Please include the following with RSVP: entrée preference, chapter affiliation (CJC, PHL or none), phone number, student/post-doc status

### ***Revision of ACS Guidelines for Undergraduate Chemistry Programs***

Maintaining high standards of excellence in undergraduate and graduate education is an important part of the mission of the American Chemical Society, and the Committee on Professional Training (CPT) plays a major role in this effort. Most chemists are aware of CPT because it develops and administers the ACS approval program for undergraduate chemistry programs.

The guidelines for ACS approval are regularly reviewed by CPT to ensure that they reflect the current state of chemistry and of education. Chemistry is a rapidly evolving science, particularly in interdisciplinary areas. Major changes have also been taking place in the delivery of undergraduate education, with increasing emphasis on applications, active learning, and group experiences.

Although the most recent edition of the guidelines was released in 2003, CPT is already considering possible major revisions for the next edition. As part of this process, it is essential to obtain broad input from the chemistry community regarding the undergraduate chemistry curriculum.

CPT invites the chemistry community to comment on new directions for the next edition of the guidelines for ACS approval of undergraduate chemistry programs. In particular, CPT seeks responses to the following questions:

\* What should an ACS certified chemistry graduate know and be able to do?

\* Are there any major impediments for an undergraduate student pursuing an ACS certified chemistry degree?

\* How should a chemistry curriculum balance the breadth of required core courses with the flexibility of elective advanced courses?

\* What ancillary skills should be required of ACS certified chemistry graduates?

\* What should be the relative roles of traditional chemical disciplines (e.g., analytical, inorganic, organic, physical chemistry) and more recently developed interdisciplinary areas (e.g., biochemistry, environmental science, green chemistry, material science) in chemistry education?

\* Given increasing public demand for program assessment and improvement, should approved departments be required to regularly assess the effectiveness of their curriculum and use the results to continually improve their program?

\* What is the value of ACS approval to your program and of an ACS certified chemistry degree to your graduates?

Please send your views on these issues, or on any other issue relating to the guidelines for ACS approval, to CPT by email at [cpt@acs.org](mailto:cpt@acs.org) with a subject of Guidelines Revision.

#### ***LVACS Officers - 2004:***

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