THE OCTAGON

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In This Issue:

Meeting Announcement/Schedule	1	LVACS Officers	3
January Meeting Minutes	2	Student Poster Session Announcement	4
LVACS Pub Night	2	This Month in Chemical History	3-4
Question of the Month	2	News from National ACS	4-5

Meeting Announcement:

Riddle: What do wine and cows have in common?
Answer: The 777th meeting of the LVACS!

777th LVACS Meeting:
Cedar Crest College - Spouses Night

Date: Tuesday, February 8, 2005
Wine Tasting Reception: 5:30 – 6:30 PM
Dinner: 6:30 – 7:30 PM
Location: Cedar Crest College, Miller Building, Harmon Hall of Peace
Menu: Salad with strawberry vinaigrette dressing, green beans, roasted potatoes, carrot cake, and beverage, with choice of entrée: Grilled chicken with artichoke hearts, Vegetable Napoleon
Cost: $20.00 for members
$10.00 for spouses and students
Note: You must be over 21 to attend the wine tasting reception and dinner.
Meeting and Talk: 7:45 PM in room 136 of the Science Center
Directions: Available at **www.cedarcrest.edu**, click on General Information, then Directions to CCC
Contact: Dianne Molchany by 4:00 PM on Friday, Feb. 4, at 610-606-4611 or **dkmolcha@cedarcrest.edu** Please indicate name, affiliation, and choice of entrée for yourself and your spouse.

Speaker: Sharon Gerdes, Technical Support Consultant for Dairy Management Inc. Ms. Gerdes answers the "Do it with dairy"™ hotline, writes articles for various industry publications, and speaks on the latest trends in the dairy industry to a variety of groups.

Talk: MOOving and Shaking with Dairy Ingredients

Abstract: Dairy ingredients are highly functional and nutritious additions to the food formulators' repertoire. Whey, the by-product of cheesemaking, was once discarded or fed to animals. Currently there are dozens of highly specialized food ingredients derived from whey. Some feature calcium for enrichment, high gelling for structural support, or instant solubility for low pH beverage systems.

Get the latest scoop on how dairy ingredients stack up to hot topics such as weight management, GMO free, organic, and food allergies. Some of the newer dairy ingredients include hydrolyzed whey protein isolate which is popular with high-performance athletes, bovine colostrum which provides natural immune factors, and conjugated linolenic acid which shows great promise as an anticarcinogen. Research at six Centers for Dairy Research has developed technologies for textured and extruded whey protein ingredients, whey protein films, and other novel functionalities.

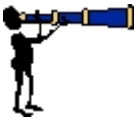
January Meeting Minutes:

The 776th meeting of the Lehigh Valley section of the American Chemical Society held at Northampton Community College was called to order at 7:30 by new chair Tara Baney. Tara introduced the new section officers including Michele Jones-Wilson the chair–elect. Tara reminded the attendees about the opportunities for judging the upcoming spring science fairs at Lehigh University and other venues. The section picnic will once again be held in August. Suggestions for section field trips were solicited. Roger Egolf presented the treasurers report, which showed that the section savings account was still at the same level today as in 1998. This is in spite if the fact that two yearly student scholarships are now funded by the section. Tara then introduced the evening's speaker Scott Hanton from Air Products and Chemicals Inc. Scott talked about the of Matrix-Assisted Laser Desorption Ionization (MALDI) mass spectrometry in the analysis of polymers. MALDI is a very useful and powerful analytical tool in the structural elucidation of polymers. It is a bulk property technique and not a trace analysis method. It is used in large part to either determine molecular structure or weight of a large variety of polymer based materials. In order to exploit the full capabilities of MALDI it is critical that the sample preparation technique used and, the matrix involved be well thought out and understood prior to any analysis being carried out. Scott demonstrated this through a series of examples, most of which had been performed on real world samples involved in real world problems. A MALDI experiment consists of four basic steps; sample preparation, absorption, desorption and ionization. Sample preparation is tied to the sample desorption technique which will ultimately determine the success or failure of the MALDI experiment. Both liquid phase and solid phase sample preparation can be used. Liquid phase preparation is very dependent and can be sabotaged by the choice of solvent. Solid phase preparation includes such time tested classical techniques as the mortar and pestle and the mini ball mill. The interpretation of results is also a critical part of MALDI. A time of flight(TOF) mass spectrometer is utilized as the detector in MALDI. Molecular weight determinations by MALDI correlate well with available NIST GPC polymer standards. The talk concluded with a discussion on LC-Transform where separation by liquid chromatography allows a complex mixture to be analyzed by MALDI. The meeting was adjourned at 9:30 following a question and answer period and the presentation of a gift from the section to Scott.

Join us in March at the Pocono Brewing Company for LVACS Pub Night!

PBC has more than 75 beers on tap - and if that doesn't wet your whistle they have more than 130 bottled beers. The evening will begin with an optional beer tasting social accompanied by traditional pub appetizers. Pool tables and darts will be available for you to try your skill. A buffet dinner featuring prime rib, chicken marsala and pasta will be followed by scrumptious deserts and our section meeting and talk. PBC is just a short drive north. Car pooling will be available.

See the March issue of the Octagon for details!



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

Question of the Month

What Germantown, Pennsylvania native was awarded the Nobel prize in Chemistry?
Come to the February meeting for the answer!

LVACS Officers - 2005:

Chair: Tara Baney
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Chair Elect: T. Michelle Jones-Wilson
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Alternate-Councilors: Roger Egolf & T. Michelle Jones-Wilson (see above)
Octagon Editor & Webmaster:
T. Michelle Jones-Wilson (see above)

2004-2005 Meeting Schedule

March 23 - East Stroudsburg University - *Pub Night*
April 27- Moravian University - *Student Poster Session*
May - DeSales University - *High School Teacher's Night*

Mark your calendars . . .

The 779th meeting of LVACS and the 3rd annual Student Poster Session will be held on April 27 at Moravian University. Details for abstract submission will be published in the March Octagon and will be available on the website.

This Month in Chemical History

Harold Goldwhite, California State University, Los Angeles, hgoldwh@calstatela.edu
Prepared for SCALACS, the Journal of the Southern California, Orange County, and San Gorgonio Sections of the American Chemical Society

The copy I recently acquired of "The Year-Book of Facts in Science and Art" for the year 1848 is unfortunately missing its Frontispiece, an engraving based on a portrait of Baron Alexander von Humboldt . That year saw the publication of the second volume of Humboldt's great treatise "Cosmos" which is a bold attempt to summarize all aspects of its subject. In addition to his synthesizing abilities as an author Humboldt was a great explorer and traveler, involved in studying the geography, geology, botany, zoology, anthropology, and history of the many remote regions he visited. One of the universities in the system in which I work, the California State University, is named Humboldt State in his honor, and the cool Humboldt current, running from Alaska down past California, keeps the Pacific Ocean cool off the California coast even in summer.

Humboldt's chemical investigations are not, perhaps, as familiar as those in the areas mentioned above, but they had interesting consequences. The account that follows draws heavily on Maurice Crosland's magisterial study "Gay-Lussac; Scientist and Bourgeois" (Cambridge, 1978). Gay-Lussac, after graduating with distinction from the Ecole Polytechnique, became assistant to the great French chemist Berthollet. The latter had a country house just outside Paris at Arcueil and an informal scientific group

began meeting there. Its members, in addition to Berthollet and Gay-Lussac, included Humboldt ,who visited Paris frequently, Laplace, Biot, Thenard and others. For a few years the group met regularly, undertook joint researches in many areas of science, presented and discussed their results, and even published a journal.

In 1805 Gay-Lussac and Humboldt, extending work each had done separately, collaborated on a careful study of the combining proportions of hydrogen and oxygen. Gay-Lussac was no stranger to pneumatic chemistry. His famous and record-setting balloon ascents with Biot and alone in 1804 had been made to study whether the composition of the atmosphere changed with height. In 1802 Gay-Lussac published almost simultaneously, but independently, with Dalton on the regularity of the expansion of gases with increasing temperature. Gay-Lussac modestly attributed the discovery to the earlier work of Charles, but most modern historians of science have found little precedent in Charles' work for the Law of Dalton and Gay-Lussac. Returning to the hydrogen-oxygen combination Gay-Lussac noted that "hydrogen combines with oxygen in double the volume of the latter" and in 1807, observing the sulfur dioxide and oxygen produced when copper sulfate is heated strongly he remarked "These two gases are approximately in the ratio by volume of 2:1 but I will return later to the exact determination of this ratio." He did!

In December 1808 Gay-Lussac published in the Memoirs of the Society of Arceuil a paper titled "Memoir on the combination of gaseous substances with each other" in which he announced the results that have come to be known as Gay-Lussac's Law: "the compounds of gaseous substances with each other are always formed in very simple ratios, so that representing one of the terms by unity, the other is 1, or 2, or at most 3". He illustrated this proposition with many examples drawn not only from his own work on hydrogen and oxygen, sulfur dioxide and oxygen, carbon monoxide and oxygen, and reactions between boron trifluoride and ammonia, but also with results recalculated from work published by Wollaston on carbonates; by Davy on nitrogen oxides; by Berthollet on ammonia; and by Biot and Arago on ammonia and hydrogen chloride.

This strikingly simple law, whose origin can be traced back to the collaboration between Humboldt and Gay-Lussac, was seen by Gay-Lussac (but not by Dalton – but that's another story) as confirmation of Dalton's new atomic theory. The opening sentences of Avogadro's famous article "Essay on a manner of determining the relative masses of the elementary molecules of bodies, and the proportions in which they enter into these compounds" published in 1811 and announcing what has come to be known as Avogadro's Law read as follows: "M. Gay-Lussac has shown in an interesting Memoir that gases always unite in a very simple proportion by volume …. The first hypothesis to present itself… and apparently even the only admissible one, is the supposition that the number of integral molecules in any gases is always the same for equal volumes, or always proportional to the volumes." Gay-Lussac and Humboldt's experiments had indeed had profound consequences for chemistry.

News from National ACS

2005 Regional Meetings Online Abstracts and Registration Open

The spring regional meetings are soliciting abstracts and are now open for advance registration. The North Jersey Local Section is hosting the Mid-Atlantic Meeting, May 22 – 25, at Rutgers Busch Campus, Piscataway, NJ. They have prepared a stunning and very unique program. Visit their web page at http://www.marmacs.org/ for more information and links to online abstract submittal and advance registration. Abstracts close March 15.

June 15 – 18 are the dates for the Northwest Regional Meeting to be held in Fairbanks, Alaska. The Alaska Local Section has worked diligently to provide an exciting and diverse program in an equally exciting setting. Check their web site at http://www.norm -schb-2005.org/ for the details and to sign up to become part of this scientific adventure.

The "spring" season ends in July this year as Western Connecticut is hosting the Northeast Regional Meeting at the beautiful campus of Sacred Heart University in Fairfield, CT. You still have plenty of time to submit a paper and participate. For more information, contact Linda Farber, General Chair, at 203-365-7596 or farberl@sacredheart.edu. Their web site was not ready at press time. Please visit the ACS regional meetings website (www.chemistry.org/ meetings/regional) for details.

Information on these meetings and all the 2005 regionals will be available at the Regional Meetings Booth 827 in San Diego. Stop by and enter the drawing for a free registration to the regional meeting of your choice.

For information on all the 2005 meetings, please visit the ACS Regional Meetings web page at www.chemistry.org/meetings/regional or call us at 800-227-5558, Department of Meetings and Expositions Services.

Project Bookshare

In 1984, the American Chemical Society launched an initiative to assist institutions that have a need for scientific

publications. Project Bookshare, as the program has come to be known, is charged with collecting chemistry textbooks and back numbers of journals from donors and making these materials available to libraries in selected small U.S. colleges and to university libraries in mostly developing countries. Donated books and journals from Project Bookshare have reached across the United States (Alabama, Kentucky, Louisiana, Michigan, Montana, South Dakota, and Tennessee, among others) and around the world to help improve the educations of chemists and chemical engineers in Africa (Chad, Eritrea, Ethiopia, Ghana, Kenya, Niger, Nigeria, Sierra Leon, Sudan), Asia (China, Kazakhstan, Korea, Mongolia, Pakistan, Philippines, Sri Lanka, and Thailand), Europe (Albania, Armenia, Cyprus, Czech Republic, Estonia, Greece, Latvia, Lithuania, Macedonia, Poland, Romania, Russia, and Turkey), and Latin America (Argentina, Bolivia, Brazil, Chile, Costa Rica, Guatemala, Mexico, Panama, Paraguay, and Venezuela).

If you are interested in making a donation to Project Bookshare, you are asked to submit a list of publications to be donated to the ACS Office of International Activities, listing each book by title, author, and date, and journals and magazines by title and issue date. Books should be no more than ten years old, except for "classic" titles. Donors are asked to cover the costs of shipping to U.S. addresses. Whenever possible, Project Bookshare staff try to match donors and recipient institutions to save time, money, repacking, and excessive handling.

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Presidential Events

ACS National Meeting in San Diego
March 13-18, 2005

During the year 2005, ACS President Bill Carroll is leading a Society-wide effort to develop scenarios of how the chemical enterprise—education, industry and government--will change in the next ten years. The goal is to understand how we can help our current and future members adapt to these changes and take advantage of the opportunities they offer. To that end, several symposia have been scheduled for the San Diego Meeting. Please see the relevant technical program for details on the following symposia:

Chemistry Enterprise 2015: Where in the World Will We Be? [PRES]

Closing the Gap for Under represented Groups by 2015: Proactive Strategies are the Key! [WCC]

Are We Preparing for the Technician Careers of the Future? [TECH]

Communication Beyond Generational Differences: Boomers, X-ers, and Millennials in the Industrial Workplace [YCC]

Special Symposia.

The Academic Employment Initiative (AEI), an NSF-funded pilot project to support the academic interviewing process, will continue in its second year. The Symposium on Academic Hiring: How to Get the Job, scheduled for Sunday morning, will feature a panel of senior and newly hired faculty to address concerns and questions raised by academic job seekers. [PRES]

The Symposium on Teaching High School Chemistry as a Second Career, scheduled for Sunday afternoon, will explore ways in which members can address the need for chemistry teachers trained in chemistry by entering the teaching field. [CHED]

The Symposium on PROGRESS: Strengthening our Academic Foundation, scheduled for Tuesday morning, will report on ACS efforts to support the hiring, promotion, and retention of women faculty and the NSF ADVANCE-sponsored university site visit project. Geraldine Richmond, founder of COACh and 2005 recipient of the ACS Award for Encouraging Women into Careers in the Chemical Sciences, will present her award address. [CHED]

Community Event

The Festival de Química, scheduled on Sunday, 1 – 3 PM, at Cesar Chavez Park, will bring chemistry to the community with a bilingual event that will feature hands-on chemistry activities, a chemical demonstration show, free science goodies for the kids, music, and opportunities to meet some special chemists.

Call for Nominations- Helen M. Free Award

The time has arrived to submit nominations for the Helen M. Free Award for Public Outreach. Any ACS member whose efforts have increased the public's awareness and understanding of the importance of chemistry or chemical engineering is eligible for the award. Go to the Committee of Public Relations and Communications web page for all of the details: chemistry.org/committees/cprc.html