



THE DAYTON SECTION

Fostering scientific education and research and promoting public understanding of science

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NATIONAL CHEMISTRY WEEK COORDINATOR

Vacant

BULLETIN**Spring Issue 2006****Meetings**

April 28: *Ecotoxicology of carbon-based engineered nanoparticles: Effects of fullerene (C60) on aquatic organisms*, by Prof. Mary L. Haasch

June 13: High School Awards with Keynote Address, *The Many Faces of Careers in Chemistry* by Past ACS President, Dr. Helen Free

Section News, Views, and Errata

- Past Meetings, pages 4-6
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DATE MATERIAL - MEETING ANNOUNCEMENT - DO NOT DELAY

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American Chemical Society
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UPCOMING MEETING

APRIL 28

ECOTOXICOLOGY OF CARBON-BASED ENGINEERED NANOPARTICLES: EFFECTS OF FULLERENE (C₆₀) ON AQUATIC ORGANISMS

A joint meeting with the Department of Chemistry, Wright State University and
the Air Force Research Laboratory, Human Effectiveness Division

Speaker: Professor Mary L. Haasch, USEPA Mid-Continent Ecology Division, Molecular
and Cellular Mechanisms Research Branch

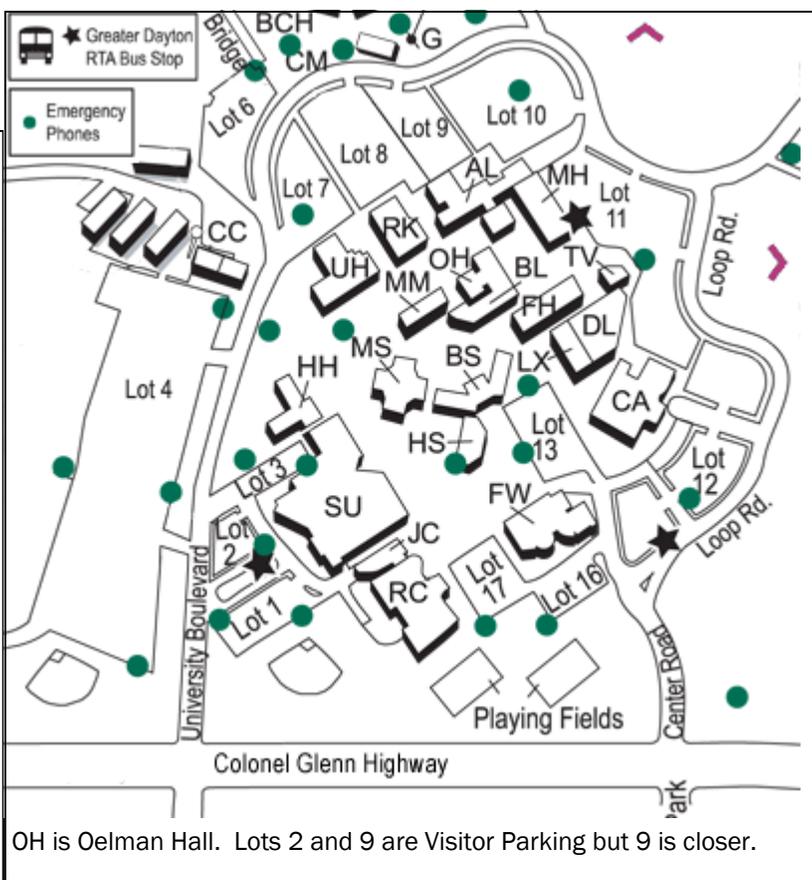
Venue: Oelman Hall, Room 340, WSU

Talk: 3:00 PM; coffee and donuts will be served beforehand, so get there early!

Abstract: Water-soluble fullerene (nC₆₀) has been shown to induce lipid peroxidation (LPO) in brain of juvenile largemouth bass (*Micropterus salmoides*) [Oberdörster, 2004]; and up-regulate genes related to the inflammatory response and metabolism, most notably the cytochrome P450 isozyme, CYP2K4 [Oberdörster, et al., 2005]. Studies will be presented regarding invertebrate acute toxicity tests using the freshwater crustaceans, *Daphnia magna* and *Hyaella azteca*, and a marine harpacticoid copepod, and sub-lethal exposures in two fish species, fathead minnow, *Pimephales promelas* and Japanese medaka, *Oryzias latipes*. Results suggest that the methods for preparation of the water-soluble fullerene can significantly affect invertebrate acute toxicity, that different invertebrates have different sensitivities to nC₆₀, and that in addition to fish species-specific sensitivities to nC₆₀, nanomaterial exposure can produce significant changes in the expression of enzymes and membrane transport proteins with essential roles in cellular metabolism.

About the Speaker:

Mary Haasch is a NRC Research Associate Senior Scientist who received here PhD in 1998 at the University of Wisconsin-Milwaukee, Biological Sciences. Before she went to USEPA in Duluth, Mary held a position as Associate Professor at the University of Mississippi, School of Pharmacy, Pharmacology (2001-2005). She is a member of a number of societies including Society of Environmental Toxicology and Chemistry Society of Toxicology. She published 25+ papers in this research area and her expertise is in areas such as environmental toxicology, aquatic toxicology, nanotoxicology and developmental toxicology, just to name a few.



UPCOMING MEETING

JUNE 13

PATTERSON HIGH SCHOOL CHEMISTRY AWARDS

WITH KEYNOTE ADDRESS,

"THE MANY FACES OF CAREERS IN CHEMISTRY"

Speaker: Dr. Helen Free, Past President of the ACS

Venue: Sinclair Community College, Room 120, Building 12 (see map on back page)

Social: 5:30 PM

Awards: 6:00 PM

Talk: 6:30 PM

Abstract: Many people have a wrong picture of "a chemist" at work. Elementary students draw an entirely different picture of a "chemist" before and after they have spent a short time at a career session or in a science museum or just talking to a scientist. And even those who are considering a career in chemistry often don't realize the awesome potential for a variety of careers based on a scientific degree. A series of examples of "what chemists do" will illustrate some of the fascinating choices available and give some insight into the life of one industrial chemist.

History of the Award

Originally established by Charles A. Thomas and Carroll A. Hochwalt, former Dayton chemists and Monsanto researchers, the top chemistry students in the area have been recognized under the auspices of the Dayton Section since 1943. In 1990, the family of the late Austin M. Patterson, also a prominent Dayton chemist, assumed sponsorship. All area high school students are invited to take an examination and the highest scoring applicants are then invited to write essays, which form the basis of the final judging. (These finalists are also invited to take the Chemistry Olympiad Exam.) In addition, teachers of the prizewinners receive awards and the top scoring student from each high school is awarded a plaque. *The top three essayists are awarded first, second, and third prizes of \$1000, \$500, and \$250, respectively.*

The 2006 Patterson High School Scholars are:

Zach Miller	Andrew Bradford*	Eric Reed*	Brad Hammond
James Voss*	Honghui Yu*	Elizabeth Commons	Wade Hart
Guanqing Ou*	Travis Pfander	Eric Harper*	Phuong Nguyen
Tom Fagan	Horace Freeman	Annie Wang*	Niranjan Venkatesan
Chris Chang*	Brian Keske	Mary Tellers*	
Paul Apisa*	Jared Monnin	Brian Graeser*	
Diana Cahill *	Niranjan Venkatesan	Nick Makley*	

Students denoted with asterisks have been invited to write essays.

PAST MEETINGS

The Chemistry of Coffee Roasting

ACS tour speaker Thomas Parliament visited our Section on February 14 and taught us about 'good' and 'not-so-good' coffee and how the differences depend on the source. The meeting was held at the Dorothy Lane Market in Springboro and was well attended with more than 40 people even though it was the evening of St. Valentine's Day. While members tasted samples (and scarfed down free pastries), they learned about the vast number of chemicals that they consume with each sip and which of the chemicals is responsible for the taste of the coffee. The evening ended with a lively discussion on how to make the best coffee, what happens to coffee while it sits on the burner for a few hours, why instant coffee is really just a coffee-flavored drink, and why that jar of instant smells so great when you first open it up.

TechFest 2006

On February 18th-19th TechFest was again held at Sinclair Community College. Organized by the Affiliate Societies Council of Dayton (ASC), which is composed of about 50 professional societies, TechFest's purpose is to celebrate the past, present, and future of math, science, engineering, and technology and its contributions to the quality of life in Dayton and the Miami Valley. Through its volunteers, TechFest informs students K-12 (and their parents) about academic and industrial career paths. It was a highly successful event both for the ASC and the Dayton Section of the ACS. Over 3000 students registered for the event and about 1500 parents attended.

This year the ACS booth followed the 2005 National Chemistry Week theme, "The Joy of Toys" with two activities. In the first, nearly 1500 kids over the course of the weekend prepared slime using polyvinyl alcohol and borax. Now, that's a lot of slime! The second activity involved a big pot of Oobleck. This is a simple mixture of cornstarch and water that becomes a non-Newtonian fluid and acts as both a liquid and a solid.



Let me get this straight; you guys actually get *paid* to make Oobleck and stuff?



Calm down, kids! There's enough slime for everyone!!

TechFest 2006 was very successful. We are very thankful for the volunteers who kept our booth going over the weekend. They include Ruby Bryant, Lisa Sweeney, Doug Krein, Jon Slagle, Eric Beckel, Midge Hall, Miranda Harris, David Hoagland, Chad Meyer, Jessica Wray, Tim Frazier, Jane Myong, Hilmar Koerner, Nora Negron, Kiet Nguyen, Melanie Tomczak, Harvey Paige, Joy Rogers, and Mark Westrick. A special thanks goes to Doug Krein for helping to prepare the PVA and borax solutions ahead of time. We would also thank Prof. John Fortman for again putting on great chemical demonstration shows throughout the weekend in the auditorium.

PAST MEETINGS

ANNUAL POSTER SESSION AND PATTERSON COLLEGE CHEMISTRY AWARDS

This year's Annual Poster Session and Patterson College Chemistry Awards were once again held at University of Dayton and co-sponsored by the Ohio Valley Section of the Society for Applied Spectroscopy. The poster session was well attended with 37 posters presented, including 16 by graduate students and 8 by undergraduates. We concluded the evening with the Awards Presentation both for best Posters (\$100 each) and the College Awards (a certificate and \$300).

The Dayton Section presented 4 Best-Poster Awards, all in the amount of \$100. The judging of the posters was taken very seriously this year and 3 Graduate and 1 Undergraduate posters were chosen. In addition, the Society for Applied Spectroscopy presented 2 poster awards of their own.

The 2006 Dayton-Section Poster Winners are:

Gail L. Dean (Grad Student, WSU): *Temperature Programming in the High-Performance Liquid Chromatographic Separation of 20 Polycyclic Aromatic Hydrocarbons in Soil, Sediment, and Sewage Sludge* (Gail also won the special prize for longest title)

Nora Hunter (Undergrad, WSU): *Diels-Alder Reactions of Cyclopentadienone Diesters*

Kirby Underwood (Grad Student, WSU): *The Synthesis and Reactions of 5,8-Dioxo-5,8-dihydroindeno[2,1-c]fluorene*

Kalyan Gadamsetti (Grad Student, UD): *Synthesis, Structure and Characterization of Lanthanide(III) Homodinuclear Complexes Bridged by Polyazine Ligands*

This year's Patterson College Award Winners are:

Matthew Bachus, University of Dayton David Lindholm, Cedarville University
Travis Clark, Wright State University Paul Morton, Antioch College
Amanda Storm, Central State University



Members of Professor Bill Feld's group were big winners, including 2 Poster-Award recipients and a Patterson-College-Chemistry-Award winner (apparently, the other 2 group members are slackers). Basking in the glow of their youthful exuberance, Bill (at right) secretly reminisces about the Bohemian lifestyle he led during his undergrad years.

PAST MEETINGS

An Illustrated Guide to the Oesper Collections in the History of Chemistry by, Prof. William B. Jensen – A Joint Meeting with the Cincinnati Section

Our first joint meeting with the Cincinnati Section in recent memory was a great success. About 80 Dayton-Section and Cincinnati-Section members enjoyed a mixer, wonderful food, and the ambience of the celebrated Golden Lamb restaurant (Est. 1803) in Lebanon. The attendees greatly enjoyed a presentation about the History of Chemistry by a true Chemistry Historian in a setting that set us back in time.



While you'd expect the occasional nod during a lecture after a big meal, the audience was as attentive as a classroom full of students waiting to hear what chapters will be on the test.



Now, *them's* good eats! (Unless you're a vegetarian.)



Professor Bill Jensen



Just a fraction of the Oesper Collection housed at the University of Cincinnati.

Mound Museum Association Sponsors Series of Historical Presentations

John Birden, a very early worker on the Dayton Project portion of the Manhattan Project, a long term Mound Laboratory employee, and a renowned raconteur, shared some of his many memories in the third of a continuing monthly series of free, public events under the sponsorship of the Mound Museum Association (MMA) Wednesday evening, March 22. Mr. Birden made his presentation at 500 Capstone Drive (formerly, GH Building of the Mound Facility), Miamisburg, Ohio.

Mr. Birden joined the super secret Dayton Project soon after its inception during World War II. He was involved in its chief task of producing a reliable source of neutrons for insuring the initiation of a chain reaction in the implosion type of atom bomb (used in the Trinity Test and in the Nagasaki mission) at the instant of achieving a critical mass via compaction of its fissionable plutonium-239 charge. Many physical and chemical difficulties had to be overcome before such sources could be produced on the surface layers of bismuth slugs, encased within aluminum cans, via their neutron irradiation within a uranium/graphite pile.

For the successful completion of the primary task of the Dayton Project much new instrumentation had to be developed to measure with great accuracy and precision the exact amounts of the radioactive elements required. Mr. Birden was deeply involved in the research, development, design and fabrication of many models of the chief such instrument, the calorimeter. He also was a co-inventor of the radioisotopic thermoelectric generator (RTG), the very reliable, stable, long lived electrical power source, which until recently was produced solely at Mound. Many solar system explorations, including the current spectacular Cassini/Huygens mission to Saturn and some of its satellites; the continuing solar polar mission, Ulysses; and the recently launched New Horizons mission to Pluto have employed these sources to power most of their instruments and to prevent instruments freezing in the extreme cold of outer space.

Continuing the series on April 26th, Mr. Kenneth Foster will give many of his technical and social reminiscences about life, people and projects at Mound over his more than four decades there. On May 17th, Dr. Don L. Hobrock, a former manager of Mound's tritium program has agreed to talk about the large, long duration weapons endeavor. On June 28th, the MMA plans to have Dr. E.W. Johnson, a former manager of Mound's RTG program as a presenter. Other events are planned but still tentative for several months thereafter.

Directions: From I-75 take Exit 44, Hwy 725 West. Go approximately 3 miles. Turn left on 5th Street (5th Street dead ends into Mound Road). Turn Left on Mound Road. Follow Mound Road to the MATC entry gate (large concrete signs & entry gateway). The Mound Museum is the first building on the left (formerly GH bldg.). Parking is available in the large lots next to & across the street from the museum.

REPORT FROM COUNCIL

At the 231st Meeting of the ACS, I represented the Dayton Section for the third time at Council. Shortly after 7 AM on Wednesday, March 29, councilors were herded into a room for a continental breakfast, although there were no tables, much less chairs, for councilors to place their beverages on while they ate with plate in hand. Several councilors commandeered for their personal use the small table holding the half-and-half, contributing to the testiness of other councilors before their first cup of the day. Perhaps at next Council, we'll be provided bibs and troughs so that we can all dine hands free.

Elections

I am happy to report that I am 2-for-2 in selecting presidential candidates; the majority once again agreed with my selections for candidates for President-Elect, 2007: Bruce E. Bursten and Bas-sam Z. Shakhashiri (the losers, make that non-winners, were Richard Eisenberg and Matthew V. Tirrell). Before I became Councilor, I voted for ACS President by counting the number of times, if any, that the candidate mentioned unemployment issues or whether or not a candidate was from New York. Now, however, I read carefully the nominees' written statements, note their past service to ACS, and grade each nominee on their answers at the Town Hall Meeting. Finally, there are the nominees' oral statements at Council just before the vote is called for. Matthew V. Tirrell flubbed his answer to a question on open access journals and his past service to ACS was scant. By my count, Shakhashiri came out slightly ahead of Eisenberg at the Town Hall Meeting but Shakhashiri's speaking style struck me as harsh. However, Shakhashiri won me over at Council, where he was animated, humorous, and came across as strictly pro-member. Rumor has it, though, that not one but two petition candidates for ACS President may be in the offing. I hope that they will be invited to address Council in San Francisco if, indeed, they meet petition requirements. Candidates will stand for election in the Fall National Election.

The Committee on Nominations and Elections announced the selection of the following candidates for Directors-at-Large for a 2007-2009 term: William H. (Jack) Breazeale, Jr., Dennis Chamot, Peter K. Dorhout, Paul R. Jones, Valerie J. Kuck, and Dorothy J. Phillips. The election of three Directors-at-Large will be conducted in the fall. Two candidates will fill the 2007-2009 term, and one will fill a two-year vacancy for 2007-2008 created by the resignation of Director-at-Large James D. Burke (effective December 31, 2006). Ballots will be mailed to the Council on or before October 10.

Committee Review

As part of a regular review, the Council VOTED to continue the Committee on Admissions and the Committee on Professional Training. The Committee on Admissions has the power to interpret and apply the requirements for membership, including determining status of applicants educated in foreign countries. The Committee on Professional Training promotes and assists in the development of high standards of excellence in all aspects of post-secondary chemical education, and undertakes studies important to their maintenance.

The Society's Finances

The Society ended 2005 with a net contribution from operations of \$11.6 million, which was \$9.1 million favorable to the approved budget. The favorable variance was primarily attributable to higher-than-budgeted print and electronic information services revenue and investment income, as well as expense savings from staff vacancies and reductions in information technology spending. The Society also realized \$21.0 million in investment gains. In total, unrestricted net assets increased just over \$26 million in 2005 to \$211 million, and the Society ended 2005 in full compliance with the Board-established financial guidelines.

Registration Report

As of March 28, 2006, the ACS spring national meeting had attracted 12,546 registrants as follows: Regular attendees 6,323; Students 4,158; Exhibitors 1,288; Exposition only 413; and Guests 364.

Society Initiatives

ACS committees and councilor caucuses provided input into three key Society initiatives:

1. The Society's new vision statement: "Improving people's lives through the transforming power of chemistry," which resulted from the input of several thousand ACS members, was unveiled and discussed at this meeting. At the District II Caucus, which I attended, a large majority of Councilors made it clear their dissatisfaction with the new vision statement. Criticisms include the fact that it is not a complete sentence, that it does not even mention the society, and that it would have been a lot cheaper to license from Dupont their old slogan, "better living through chemistry." I, for one, am nonplussed with the new vision statement. An alternative, which, however, does not quell the above criticisms is, "Transforming people's lives through the power of chemistry."
2. The Board-Council Policy Committee Governance Review Task Force was charged with reviewing the Society's governance, and Constitution and Bylaws, to ensure that the Society has a governing framework to enable it to best fulfill its mission, meet member needs, and remain a world-class organization. The task force developed a framework that emphasized five key elements of the Society's governance, which are: membership, geographical organization, disciplinary organization, governance structure, and governance operations.
3. A Program Review Advisory Group (PRAG) has been established to assist the Committee on Budget and Finance in reviewing all programs of the Society (with some exemptions) on a periodic and regular basis. The PRAG consists of councilors, members of the Board of Directors, members of the Committee on Budget and Finance, and representatives from the committees with oversight over the programs under review in a given year.

Member Statistics

ACS closed 2005 with 158,422 members, reversing a 4-year downward trend in Society membership. Of the 15,532 applications processed in 2005, nearly 900 came from the Member-Get-A-Member campaign, in which many councilors participated. The membership retention number remained stable at 92.4%.

Special Discussion

A special discussion item was put on the Council agenda for this meeting. The discussion focused on membership – specifically, the requirements for ACS membership, and whether they should be made more or less restrictive, or kept the same. ACS President E. Ann Nalley invited the co-chairs of the Board-Council Policy Committee Governance Review Task Force, James D. Burke and William F. Carroll, to help frame the discussion by presenting the results of a councilor survey on ACS membership requirements.

2006 Member Dues

The Council VOTED to set the member dues for 2007 at the fully escalated rate of \$132.

Future National Meetings

The Council voted to recommend to the Board of Directors that the spring meeting for 2015 be held in Denver, Colorado, March 22-26; and that the fall meeting be held in Boston, Massachusetts, August 16-20. The Council also voted to recommend locations and dates for the 2016 meeting as follows: the spring meeting to be held on March 13-17, in San Diego, California; and the fall meeting to be held in Philadelphia, Pennsylvania, on August 21-25.

Your faithful Councilor, Steve Trohalaki

Alzheimer's Avoidance Therapy*

Unscramble the letters to reveal chemical phenomena, chemicals, or chemical moieties. Then, use the circled letters to solve the riddle. Answers next edition!

X T E M O Y H ○ ○ □ □ ○ □ □

L I N V Y ○ ○ □ □ □

N I I C R ○ □ ○ □ □

M S S I O O S ○ ○ □ □ ○ □ □

C L A R I U ○ □ □ □ □ □

The retired chemist couldn't quite come up with a catchy title for his cheesy crime novel:

"Blood is ○ ○ ○ ○

○ ○ ○ ○ ○ ○ ○

Than Dihydrogen Oxide"

*Surveys suggest that that mental exercises, including word puzzles, may delay the progression of Alzheimer's Disease.

Editors Note

I received several complaints that the humor in the last edition of the *Bulletin* was sophomoric even though I admitted as much by including on page 5 a photograph of myself as a sophomore in college. Evidently, the symbolism wasn't as obvious as I'd assumed.

As always, I look forward to your comments, criticisms, tirades, and threats.

ST

Sinclair Community College Partial Campus Map



Use parking lot beneath Building 12 off of W 4th St.

Quotable Quotes for \$2000, Alex!

"The difficulty in science is often not so much how to make a discovery but rather to know one has made it."

-J.D. Bernal

"Sarcasm is the refuge of a shallow mind."

-Unknown

"I don't dislike *you*; it's your *personality*."

-Unidentified woman in an Albany bar, circa 1985