



# THE DAYTON SECTION

*Fostering scientific education and research and promoting public understanding of science*

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Vacant

**BULLETIN****Spring/Summer 2005****Meeting Announcements:**

**June 8:** Patterson High School Chemistry Awards at Wright State University

**Sept. 8:** Dr. Donald Burns presents “Counterfeiting: Catch'em with Near-IR”

**Also in this issue:**

- Highlights from past meetings
- ACS Women Chemists Committee travel awards
- Call for volunteers
- Win big in the Section's *Spot the Humor* contest!

DATE MATERIAL - MEETING ANNOUNCEMENT - DO NOT DELAY

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American Chemical Society  
Dayton Section  
Eugene M. Kettinger Center  
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Dayton, OH 45402-1267

## Upcoming Meetings

### **JUNE:**

### **THE PATTERSON HIGH SCHOOL CHEMISTRY AWARDS**

**DATE:** Wednesday, June 8<sup>th</sup>

**VENUE:** Wright State University, Student Union, Room 156A

**AGENDA:** 6:00 PM: Social

6:30 PM: Awards Presentation

7:00 PM: *Careers in Chemistry* Presentation

7:15 PM: Keynote Address and Chem Demos: *The Science of Magic*

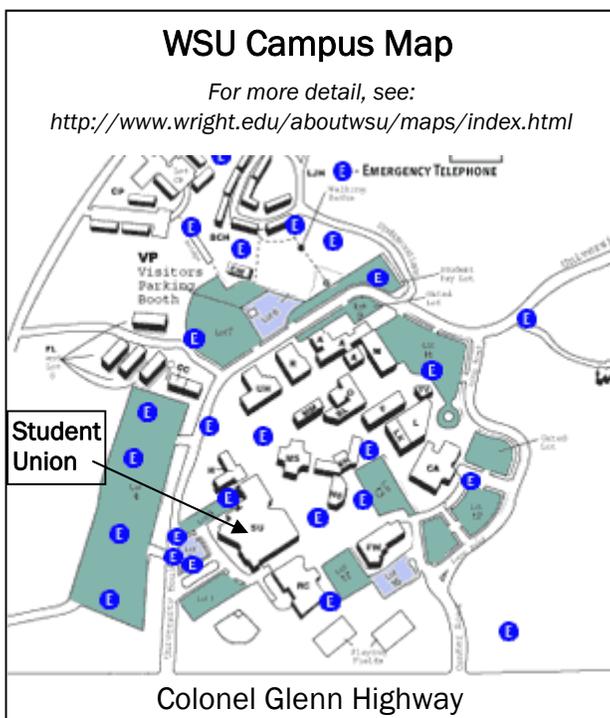
**KEYNOTE SPEAKER:** Professor John Fortman, Wright State University

**ABSTRACT:** Magicians use the wonders of science to entertain but always keep the explanation or secret of their tricks from the audience. Science teachers use the wonders of science in demonstrations to develop interest in students but should also explain the mystery or principles behind their tricks. In this talk, the scientific explanations of the "magic tricks" shown will be presented in an educational fashion. Learn the science behind such tricks as the burning book, the non-burning cloth, the tablecloth pull, the heavy newspaper, the bottomless bottle, the egg in the bottle, the lidless bottle, the magic flask, the genie in the bottle, the rainbow liquid, and the needle through the balloon.

### **HISTORY OF THE PATTERSON CHEMISTRY COMPETITION**

Originally established by Charles A. Thomas and Carol 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.



## Upcoming Meetings

### SEPTEMBER:

#### **COUNTERFEITING: CATCH'EM WITH NEAR-IR**

DATE: Thursday, September 8<sup>th</sup>

SPEAKER: Dr. Donald Burns, Los Alamos National Laboratory

*Details of the venue and time will follow in the next edition of the Bulletin*

A hundred years ago a prospector declared, "There's gold in them thar hills." And today chemists working in the Near-IR region can say, "there's hidden information in them thar spectra." And it's enough to identify counterfeit currency, fake turquoise, non-Cuban cigars, illegitimate drugs, and imitation ivory (among other materials). It all began at Los Alamos National Laboratory when it became known that a nearly perfect counterfeit \$100 bill (known as the Supernote) was defying detection at the nation's Federal Reserve Banks. NIR to the rescue. Dr. Burns will show how NIR detected both \$20 and \$100 bills by diffuse reflectance. Then he'll show his astonishment at a method of distinguishing genuine turquoise jewelry (big business in the Southwestern US) from colored plastic. It shouldn't be necessary to subject a suspect gemstone to conditions inside a red-hot crucible to identify it as real or fake. Such a display on a local television station prompted him to substitute 30-second non-invasive NIR for the torch, and it worked.

## Past Meetings

### **THE HISTORY, CHEMISTRY, AND IDENTIFICATION OF 19TH CENTURY PHOTOGRAPHS**

ACS tour speaker Dr. Anthony Winston visited our section on April 20<sup>th</sup> to present the history of the Daguerreotype and the first practical photographic process, invented in 1839. He also brought along many examples of daguerreotypes for the audience to view. Amazingly, after all these years, the daguerreotypes are in excellent condition. He also explained the diffi-



An example of a daguerreotype of a chemist (obtained from The Daguerreian Society at [www.daguerre.org](http://www.daguerre.org)).

culties of the wet plate process, particularly during that time period, as well the dangers involved in the handling of the required chemicals. During the 19<sup>th</sup> century, being a photographer was hardly an easy job! Held at Sinclair Community College in conjunction with the Materials, Manufacturing, and Enabling Technologies Series, the meeting was well attended with about 40 people.

### **ACS Women Chemists Committee Travel Awards for 2006**

The Eli Lilly & Company is sponsoring a program to provide funding for undergraduate, graduate, and postdoctoral women chemists to travel to scientific meetings in 2006 to present the results of their research. Grants may be applied only for registration, travel, and accommodations, and are restricted to travel to meetings within the United States. Grant funds are limited, but there are some funds set aside for undergraduates. Only U. S. citizens and permanent residents are eligible. Applications should be limited to one per research group. Awards will be given with preference to the following order:

1. Any applicant who will be making her first presentation (regardless of format) at a national or major meeting.
2. Graduate or postdoctoral applicants who have not presented at a national or major meeting since leaving undergraduate school.

Women who have received a prior award under this program are ineligible. The deadline dates for receipt of applications are as follows:

- September 15, 2005 – Meetings between January 1 and June 30, 2006
- February 1, 2006 – Meetings between July 1 and December 31, 2006

For detailed information about this award and how to apply visit the Women Chemists Web site at <http://membership.acs.org/W/WCC/> or contact the WCC office at [wcc@acs.org](mailto:wcc@acs.org).

### ***Call for Volunteers: National Chemistry Week***

We are in need of a *National Chemistry Week Coordinator* to plan section activities for NCW, which is held each year in October. Traditionally, these activities are held at local schools, malls, and museums. Help is available from the NCW Task Force and the Section supports NCW with a significant budget. If you are interested in this position please contact Joy Rogers at (937) 255-3808 x3179 or [Joy.Rogers@wpafb.af.mil](mailto:Joy.Rogers@wpafb.af.mil).

### **Win a Free Meal in the Dayton Section's *Spot the (Attempts at) Humor Contest!***

Quite a few Section Members – well, several, ... OK, like, 2 – have noticed here and there attempts to make the *Bulletin* funny, amusing, or, perhaps, not quite so dreary. Or, maybe this is just evidence that our Editor is living in his own twisted, little world. In any case, if you can correctly enumerate the attempts at humor (e.g., the disclaimer under the image of the cake in the January 2005 edition – very funny, ha ha) since the April-June 2004 *Bulletin*, the Section will buy you lunch or dinner – your choice! Send your entry via email to: [lisa.denny@wpafb.af.mil](mailto:lisa.denny@wpafb.af.mil) or via conventional mail to the attention of the Secretary, Dayton Section ACS, 140 East Monument Ave., Dayton, OH 45402-1267.

In order to obtain feedback from Section Members and to encourage dialogue between Members and Section Officers and Committee Chairs, Letters to the Editor will be published in each edition of the *Bulletin*. Send email to: [steven.trohalaki@wpafb.af.mil](mailto:steven.trohalaki@wpafb.af.mil) or write it on the back of a \$20 bill and send it via conventional mail to the attention of the Bulletin Editor, Dayton Section ACS, 140 East Monument Ave., Dayton, OH 45402-1267.