



The Newsletter of the  
Central Arizona Section of the  
American Chemical Society

Web Page:

<http://membership.acs.org/C/CentralArizona/>



## Decoding the Stradivarius: The Materials, the Sound, and the Mystique

Dr. Joseph Nagyvary  
ACS Tour Speaker  
Texas A & M Emeritus

Tuesday, February 14  
6:00 p.m.

Arizona State University  
Physical Sciences Building  
Room H-151

Light refreshments will be served before the talk.

### Abstract

Following centuries of speculation, some definitive results were obtained on the material makeup of old Italian string instruments, including one sample of Antonio Stradivari. The results are quite different from those obtained last century and on some recent instruments. There seem to be three major differences that may have a profound effect on the acoustical properties: (1) The wood of the old instruments was soaked in a brine, (2) the surface was filled with a water-soluble mucilage and mineral powder, and (3) the varnish itself was a microcomposite. Admittedly, the limited number of samples analyzed does not allow a generalization, but numerous studies of reconstruction lend support to this new view of what was really important in the Cremon method of violin making. Chemistry –both ancient and modern –emerges as a critical tool in determining the sound quality of wooden musical instruments. Historical evidence suggests that Stradivari and his colleagues were lucky beneficiaries of fortuitous coincidences with regard to wood procurement and finishing technologies. Much of the mystique concerning Stradivari's violins could have had its real origin at the local drug store.

Dr. Joseph Nagyvary has brought an unprecedented level of academic expertise to bear upon the age-old violin puzzle. A native of Hungary, he majored in chemistry at the Eotvos Lorand University of Budapest (1952-1956); he became a student of the Swiss Nobel Laureate Paul Karrer in 1957 and received his Ph.D. in the chemistry of natural products in 1962. While in Zurich, he had his first formal violin lessons on a violin that once belonged to Albert Einstein, a coincidence that helped turn his attention to the physical

mysteries of the violin. In 1963, he spent a postdoctoral year with Lord Alexander Todd, a British Nobel laureate. He came to the United States in 1964 and settled down in Texas in 1968, where he was a professor of biochemistry and biophysics at Texas A&M University until his retirement in 2003. Dr. Nagyvary was the recipient of a Career Development Grant and numerous other research grants from the National Institutes of Health, the National Science Foundation, and the National Aeronautics and Space Administration. His discoveries concerning the classical violins were made public in over 250 lectures sponsored mainly by the American Chemical Society. On such occasions, comparisons were made between Dr. Nagyvary's new creation and the finest locally available antique Italian violin. For the results of a comparison with a Stradivarius, go to [www.nagyvaryviolins.com](http://www.nagyvaryviolins.com). Currently, Dr. Nagyvary is still doing research as professor emeritus, but he also wears a second hat: running his own violin production company, Nagyvary Violins.

Recently Dr. Nagyvary was awarded a gold medal from the Japanese Society of Applied Physics before 1,200 of its members in Tokyo's Opera City Hall, the largest scientific meeting ever held in Japan. Dr. Nagyvary was invited to speak and deliver the keynote address before the group in conjunction with the Einstein Centennial Celebration, the last event of the World Year of Physics meeting held last Dec.13. To find out more about this event visit the website above.

### Eyring Lecture

The Central Arizona Local Section will cosponsor with the Department of Chemistry and Biochemistry at ASU an Eyring lecture during the Spring semester. On March 9 Dr. Graham Fleming, from the University of California at Berkeley, will present a general lecture at 7:30 pm in the Physical Sciences Building, room H-150. The following day he will give a technical talk at 3:40 pm in PS H-150. An announcement will be posted on the ASU Department of Chemistry and Biochemistry web site at a later date (<http://chemistry.asu.edu>). A flyer will also be sent via email.

## 2005 50-Year Awards Luncheon

The Central Arizona Section will honor the 2005 recipients of 50 year membership awards in the ACS at a luncheon in their honor on Saturday, February 18, 2006 from 12:15 – 3:00 P.M.

Carver's Steakhouse  
8172 W. Bell Road (just east of Loop 101 in Glendale)  
623-412-0787

Please join us to honor the following 2005 awardees:

|                    |                |
|--------------------|----------------|
| Allan Bieber       | Robert Fiel    |
| Bert Chamberland   | Louis Gachic   |
| John Clements      | Don Gilbert    |
| Joanne Collins     | Robert Russell |
| William Cunningham |                |

The cost for the luncheon is \$12 per person payable at the door. Reservations are required. You will have your choice of several menu items. After lunch, our 50-year awardees will reflect on their careers in chemistry. This is always one of the year's most enjoyable events. Reservations should be made NO LATER THAN FEBRUARY 14 by calling Doug Sawyer at 480-423-6196. Please leave your name, phone number, and the number of people in your party.

## Tucson to Host The 19<sup>th</sup> Rocky Mountain Regional Meeting

The 19th Rocky Mountain Regional Meeting of the ACS, October 14 - 18 2006, hosted by the Southern Arizona Section, will be held at the DoubleTree Hotel Reid Park, Tucson, Arizona.

### *Abstract Submittal and Registration*

Online abstract submission closed August 1, 2006. Advance registration closes September 21, 2006. Visit the web site, [www.rmacs2006.arizona.edu/meeting.html](http://www.rmacs2006.arizona.edu/meeting.html), for detailed information, to register, and to submit a paper. This is an exciting year for regional meetings because in addition to having regional abstracts appear online on CAS, ACS Books will begin reviewing regional meeting papers for possible inclusion in their ACS symposium series

### *Featured Topics*

Papers are sought in traditional areas of chemistry and a variety of multidisciplinary chemical research areas, as well. These include: Chemistry of drug development; Chemistry in the Wild, Wild West; Pathways & Natural Products; Materials Chemistry for Electronics & Photonics;

Chemistry in Silico; Chemical Biology; Astrochemistry; and Environmental Chemistry.

*Symposia* include Bioinspired Chemical Sensing; Chemistry of Terrorism; Chemistry & the Environment; The Chem in Biochem: Chemical Biology of Cancer; Digital Technologies for Teaching Chemistry; A Little Chemistry: Polymers and Nanostructured Materials.

### *Housing*

A block of rooms has been reserved at the Reid Park DoubleTree Hotel. Reservations can be made by calling the hotel directly at (520) 881-4200 (please mention that you will be attending the Rocky Mountain Regional Meeting to receive the special rates) or by following links from the meeting website, [www.rmacs2006.arizona.edu/meeting.html](http://www.rmacs2006.arizona.edu/meeting.html).

## Election Results for 2006 Officers

The results of the election for local section officers are as follows:

Chair-elect – Ron Briggs  
Secretary -- Rich Bauer  
Treasurer -- Bert Chamberland

Any of the local section officers welcome questions or comments from the members. Their contact information can be found below.

## Folk Medicine in the 19<sup>th</sup> Century

Dr. Ned Heindel  
ACS Tour Speaker  
Lehigh University

Wednesday, April 19  
6:00 p.m.

Scottsdale Community College  
Room TBA

Light refreshments will be served before the talk.

### Abstract

In the absence of enforced licensing laws and in the presence of a malevolent and painful medical orthodoxy that focused its therapy on bloodletting and leeching, the 18th and 19th centuries saw the growth of a vigorous alternative medical system. In the Eastern United States, this unorthodox medicine was especially well entrenched, and pow-wow "doctors", hydropaths, Thomsonians, electropaths, and homeopaths maintained sizable practices. Substantial reliance on herbal preparations of folk culture origin, on charms and semi-occult chants, and on defined acts and manipulations characterized many of these medical systems. Vestiges of these unorthodox practices still survive, but even more

important several of the therapies and natural product preparations that they devised have found their way into the medicine of today.

Dr. Ned Heindel served as President of the American Chemical Society in 1994 and director of ACS from 1985 through 1996. His service to the chemical community continued as he was the director of the Council for Chemical Research (1995–1999) and a board member for IUPAC-USA (1995–2001). He was both a member and then chairman for the Chemical & Engineering News board, and has served on the board for the Journal of Pharmaceutical Science and Bioconjugate Chemistry. Dr. Heindel is currently a professor of nuclear medicine at Hahnemann University (1971–present), and of chemistry at Lehigh University (1976–present). He also has served as a faculty member at Ohio University, University of Delaware, Marshal University, and Princeton University. Throughout his career he has been a consultant to numerous companies and institutions, including; the National Museum of American History, Unimed Pharmaceuticals, Serenix Pharmaceuticals, and Air Products and Chemicals. Dr. Heindel's awards include the H.S. Bunn Distinguished Chair in Chemistry (1985–present), the Brady Cancer Achievement Award (1989), the Henry Hill Award in Medicinal Chemistry (1997), and the Ben Franklin Partnership Award for Corporate Consulting (2002).

### Chemistry Olympiad

The Central Arizona Section will once again be participating in the US National Chemistry Olympiad April 22 on the ASU Tempe campus. To qualify for the national exam, students will take a local section exam on March 25. Encourage your local high school students and teachers to participate in this event. Teachers can contact Rich Bauer (480-965-4326) with any questions.

### Event Planned for Senior Chemists in Atlanta

If you are a retired chemist and plan to be in Atlanta for the March 26-31, 2006 ACS National Meeting, be sure to attend the *Silver Circle & Retiree Breakfast* on Tuesday, March 28, at the Marriott Marquis Hotel, Salon 1. The event is 7:30-9:00 a.m. and tickets can be purchased at registration. Program details will be announced in the Meeting Program. Ticket price is \$10.

### High School Teaching Award

Nominations are being solicited for *The Division of Chemical Education Rocky Mountain Region Award for Excellence in*

*High School Teaching.* The purpose of this award is to recognize, encourage, and stimulate outstanding teachers of high school chemistry in the Rocky Mountain Region. The Rocky Mountain Region of the ACS consists of Local Sections in Arizona, Colorado, New Mexico, Utah and Wyoming. The award will be given at the regional meeting in Tucson, October 14-18, 2006. The regional award consists of a cash award and a plaque. Reasonable travel expenses to the meeting at which the award will be presented will be reimbursed. A certificate/plaque may also be provided to the recipient's institution for display. In some cases, the awardee may be asked to give a keynote address or participate in a symposium with other teachers. The nomination deadline is May 15, 2006. For information on eligibility and the nomination procedure, contact Rich Bauer ([rbauer@asu.edu](mailto:rbauer@asu.edu)).

### Directions to ASU Local Section Meetings

Local section meetings are usually held on the campus of ASU in the Bateman Physical Sciences complex located on University Drive in Tempe. H-wing of the complex runs directly along University Drive between College and McAllister Avenues. Visitor parking is available on campus and street parking can be found in downtown Tempe off of College Avenue. The most convenient place to park is in the ASU Foundation Garage, which charges a nominal fee. For a map of ASU's campus, point your browser to the URL: <http://www.asu.edu/map/>.

### Local Section Contacts

#### Officers

- Chair: Christine Pruis, 480-965-1589, [Christine.Pruis@asu.edu](mailto:Christine.Pruis@asu.edu)
- Chair Elect: Ron Briggs, 480-965-1905, [ronbriggs@cox.net](mailto:ronbriggs@cox.net)
- Immediate Past Chair: Richard Bauer, 480-965-4326, [rbauer@asu.edu](mailto:rbauer@asu.edu)
- Treasurer: Bert Chamberland, 480-839-3634, [chemist@wbbsi.net](mailto:chemist@wbbsi.net)
- Secretary: Richard Bauer, 480-965-4326, [rbauer@asu.edu](mailto:rbauer@asu.edu)
- Counselor: Ted Brown, 480-965-3650, [tbrown@asu.edu](mailto:tbrown@asu.edu)
- Counselor: Doug Sawyer, 480-423-6196, [doug.sawyer@sccmail.maricopa.edu](mailto:doug.sawyer@sccmail.maricopa.edu)
- Webmaster: Ron Briggs, 480-965-1905, [ronbriggs@cox.net](mailto:ronbriggs@cox.net)



**Spring 2006 Local Section Calendar of Events**

| <b>Event</b>   | <b>Date</b>   | <b>Location</b>   | <b>Description</b>  |
|--|---|---|---|
| Local Section Meeting<br>ACS Tour Speaker:<br><b>Dr. Gary Nagyvary</b><br>Texas A&M        | Tuesday, Feb. 14<br>6:00 PM                                       | ASU<br>H-151  | Decoding the Stradivarius:<br>The Materials, the Sound, and the<br>Mystique |
| ASU Eyring Lecture:<br><b>Dr. Graham Fleming</b><br>Department of Chemistry<br>UC Berkeley | Thursday, Mar. 9<br>7:30 p.m.<br><br>Friday, Mar. 20<br>3:40 p.m. | ASU<br>H-150<br><br>ASU<br>H-150                                    | TBA<br><br>TBA  |
| 231 <sup>st</sup> National Meeting   | March 26-30   | Atlanta, GA   |   |
| Chemistry Olympiad<br>Local section exam<br>Nation exam                                    | Saturday, Mar. 25<br>Saturday, Apr. 22                            | ASU-TBA<br>ASU-TBA  | 2006 National Chemistry<br>Olympiad Competition                             |
| Local Section Meeting<br>ACS Tour Speaker<br><b>Dr. Ned Heindel</b><br>Lehigh University   | Wednesday, Apr. 19<br>6:00 PM                                     | Scottsdale CC<br>Peridot Room<br>(located in the<br>student center) | Folk Medicine in the 19 <sup>th</sup> Century                               |