

theCHEMICALbulletin

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DECEMBER • 2002

CHICAGO SECTION AMERICAN CHEMICAL SOCIETY

Joint Meeting with CHICAGO CHEMISTS CLUB HOLIDAY PARTY/MEETING

FRIDAY, DECEMBER 13, 2002

Monastero's Ristorante

3935 W. Devon Ave.
Chicago, IL
773-588-2515

DIRECTIONS TO THE MEETING

Take I-94 (Edens Expressway) to either Touhy Avenue East or Peterson Avenue East exit. These exits drop you off at Cicero Avenue. If you exit at Peterson Avenue, go 1/2 mile north on Cicero to Devon Avenue. If you exit at Touhy Avenue, go south on Cicero one mile to Devon Avenue. Go east on Devon Avenue just past Pulaski Avenue (about 1/2 block). The restaurant is on the south side of the street.

PARKING: Free valet parking available.

This is the Chicago Section ACS/Chicago Chemists Club Annual Holiday party/meeting. At this event, everyone is a chemist (either practicing or honorary)! Come join in the celebration with all your fellow chemists. So, in addition to our technical program, Santa will be bringing gifts! ENJOY!

FOOD FOR CHARITY

We will be collecting canned goods for charity at the December Holiday Party. Please bring at least one can of food to donate when you come. Thanks!

SOCIAL HOUR 6:00- 7:00 P.M.

Cash Bar Available with complimentary hors d'oeuvres

DINNER 7:00 P.M.

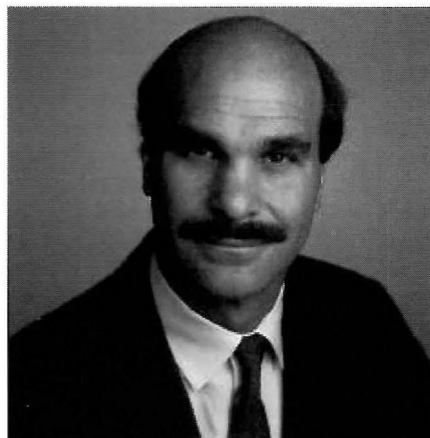
Botticelli Room

(Menu On Page 2)

Dinner reservations are required. The restaurant requests a count earlier than usual because of all the parties they need to accommodate during this season. Please make your **reservations by Tuesday, December 3** with the Section office via **phone** (847-647-8405), **fax** (847-647-8364), **email** (chicagoacs@ameritech.net), or **website** (<http://membership.acs.org/C/Chicago>).

GENERAL MEETING

8:00 P.M.



Dr. Mark A. Ratner, Morrison Professor Chemistry, Department of Chemistry, Northwestern University, Evanston, IL

Title: WINE, BEER, SCOTCH AND CHEMISTRY

Abstract: This discussion will devote itself to a bit of the history concerning the relationship of mankind and the ethanol. In keeping with the generally relaxed theme of this dinner meeting, no attempt at serious discussion will be made. Ethanol and hominids have been moving together for at least eight millennia, and that is enough time for us to have learned some of the qualities of this very simple molecule, and of

what a very simple molecule can do when it interacts with people. We will talk about that, a bit about the chemistry, and a lot about the behaviors.

Biography: Mark Ratner received his A.B. from Harvard University in 1964, Ph.D. in Chemistry from Northwestern University in 1969. He did a postdoctoral at Aarhus University, Denmark in 1970. He is currently Morrison Professor of Chemistry at Northwestern University. He was Associate Dean of the College of Arts and Sciences at Northwestern from 1980-84.

His awards and honors are numerous and include A.P. Sloan Foundation Fellow, 1972-5; Fellow, Advanced Study Institute, Hebrew University, 1980, 1993; University Distinguished Teacher Award Northwestern University, 1981; Fellow, American Physical Society, 1981; Fellow, American Association for Advancement of Science, 1992; Member, American Academy of Arts and Sciences, 2001; Member, National Academy of Science, 2002; Feynman Prize, 2002.

His professional memberships include the American Physical Society, American Chemical Society, Materials Research Society, AAAS, and Sigma Xi. Mark is also a member of the editorial board of numerous scientific journals. He is a former Chair of the ACS Division of Physical Chemistry, and is Chair of the Materials Advisory Committee, Dow Chemical Company.

NOTICE TO ILLINOIS TEACHERS

The Chicago Section-ACS is an ISBE provider for professional development units for Illinois Teachers. Teachers who register for the December meeting will have the opportunity to earn up to 3 CPDU's.

(continued from page 1, column 1)


Holiday Menu: Fresh Fruit Cup; Dinner Salad with choice of Italian or Creamy Garlic Dressing; choice of either Roast Tenderloin of Beef with Marsala Sauce, Broiled Salmon with Limone Sauce, or Eggplant Parmesan; Broccoli and Glazed Carrots; rolls and butter; Spumoni Ice Cream; beverage.

The cost to Section members who have paid their local section dues, members' families, and visiting ACS members is \$35.00; Cost to non-Section members is \$37.00. The cost to students and unemployed members is \$17.50. Seating will be available for those who wish to attend the meeting without dinner. Tables of 8 or 10 are available and may be reserved at this time. PLEASE HONOR YOUR RESERVATIONS. The Section must pay for all dinner orders. No-shows will be billed.

REGISTER TO ATTEND MONTHLY SECTION MEETINGS

ON LINE

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RESEARCH OPPORTUNITIES FOR FACULTY

The National Science Foundation Chemistry Division has instituted a program of Research Sites for Educators in Chemistry (RSEC) in recognition of the need to encourage research and experiential learning at primarily undergraduate institutions (PUIs) in the US. The Site at the University of Tennessee in Knoxville offers US PUI faculty in chemistry, biology, and other related fields opportunities for NSF-supported fellowships aimed at enhancing both research and teaching in chemistry and related disciplines at Fellows' home institutions. Postdoctoral fellowships are available (at lower priority) for prospective PUI faculty who are US citizens or permanent residents.

NSF/RSEC now offers Fellows **flexible research visits of 2-15 months** at the University of Tennessee in Knoxville (UTK) and/or at a research-active institution, including Oak Ridge National Lab, UT-Chattanooga, University of the South (Sewanee), University of North Carolina-Asheville, Berea College, and Procter & Gamble. Research hosts at UT and the "partner" institution(s) will help each Fellow establish collaborations sustainable beyond the term of appointment though "catalyst" grants of up to \$7000 upon completion of the Fellowship. Funding is also provided for sabbatical and/or summer salary, displacement and travel expenses, and supplies.

Teaching activities will be limited to no more than one course per semester (none in the summer), providing an opportunity to share teaching ideas while being actively engaged in state-of-the-art research. **Support is now available for a qualified student from the Fellow's home institution for research with the Fellow during and/or after the Fellowship.**

Details about the program, including an on-line application form, are available at <http://www.chem.utk.edu/~rsec/>, or by contacting the RSEC Program Director: **Dr. Kelsey D. Cook**, 865-974-8019, email: rsec@utk.edu, or the RSEC Program Assistant: **Genny Michael**, 865-974-3387, email: gmichael@utk.edu.

Applications can be submitted at any time, but should be received by mid-January for Fall start dates and mid-July for Spring start dates.

CHICAGO SECTION MEETING CALENDAR

January 24, 2003

Section meeting
Dr. Daniel W. Armstrong
Iowa State University
"Separating Microbes in the Manner of Molecules"

February 21, 2003

Section meeting
Mr. Gary Kitmacher
NASA, Johnson Space Center
"Views from Space"

March 14, 2003

Section meeting
Public Affairs program

April 25, 2003

Section meeting
Dr. Michael Pellin
Argonne National Laboratory
"Analytical Chemistry of Stardust"

May 30, 2003

Section meeting
Willard Gibbs Medal Award
TBA

May 31-June 2, 2003

Great Lakes Regional Meeting
Loyola University, Chicago.

June 20, 2003

Section meeting
Scholarship awards presented
Dr. Tejal A. Desari
Boston University, Boston, MA
"Micro-therapeutic Constructs: Opportunities in Implantable and Oral Based Drug Delivery"

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"CHEM SHORTS" For Kids

The Elementary Education Committee of the Chicago Section ACS presents this column. They hope that it will reach young children and help increase science literacy. Please cut it out and pass it on to your children, grandchildren, or elementary school teachers. It is hoped that teachers will try to incorporate some of the projects in this column into their lesson plans.

WATER WATER EVERYWHERE

Kids, did you ever wonder how much of the water on the planet is available to drink? Although 75% (three-quarters) of the Earth's surface is covered with water, 97% of it is too salty to drink. Another 2.5% is either frozen or too deep to reach, leaving just 0.5% of Earth's water for drinking, washing, cooking, and irrigation. Here we have an activity so that you can see for yourself how little water this is. Because proper proportions are so important for this demonstration, we will use the accurate measuring "cups" available in a standard science lab: a 1-liter beaker filled to the liter mark with tap water, 10- and 50-ml graduated cylinders, 3 smaller beakers (about 50-ml size), a dropper, wax paper, measuring spoons, and sodium chloride (table salt).

Imagine that the water in the 1-L beaker represents all the water on Earth. Now pour 28 ml (using the 50-ml cylinder) into a small beaker labeled "A". Stir 1 tablespoon of salt into the large beaker of water. This big beaker now represents all of the salty, undrinkable ocean water on the planet, and the 28 ml in beaker A represents all of the Earth's freshwater. Pour 6.5 ml from beaker A into another small beaker labeled "B". Now beaker A represents all of the freshwater frozen in ice caps and glaciers (you can even freeze this now to make it more dramatic), and beaker B is the rest of the freshwater. Pour 3.4 ml from beaker B into the last small beaker, labeled "C". Now beaker B represents groundwater that is too deep to use, and beaker C is the entire freshwater supply available to us on Earth.

Unfortunately, much of this freshwater is polluted. Use the dropper to remove just 5 drops from beaker C and drip them onto a piece of wax paper. These 5 drops are a reasonable estimate of how much drinkable water is actually available from the original 1 liter of water.


As freshwater becomes scarce people are beginning to turn to seawater as a resource. However, before we can drink seawater the salt must be removed.

(This is because too much salt will disrupt the normal balance of electrolytes in our bodies; cells with too much or too little will not function properly). Desalination plants purify water either by distillation (boiling off pure water leaves salts behind, but this is very expensive) or reverse osmosis using special membranes (see 5/01 issue for more on this).

Reference: M. Stewart in ChemMatters, Oct. 2002, pg. 4; M. Brennan, Chemical & Engineering News, 4/9/01, pg. 32; D. Martindale, Scientific American, Feb. 2001, pg. 52.

Submitted by DR. K. A. CARRADO.

All past "ChemShorts" are on the Internet at: <http://membership.acs.org/C/Chicago/ChmShort/kidindex.html>



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ANALYSIS FOR THE CHEMICAL ELEMENTS

FREE T-SHIRT

The Hospitality Committee raffles one T-shirt at monthly dinner meetings. The shirt has Chicago spelled out using the periodic table. So come to a monthly meeting and maybe you will win one.

Congratulations to T-shirt winner Peter Coaghlin (October meeting).

FRAN KAREN KRAVITZ
HOSPITALITY COMMITTEE CHAIR

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CHAIR'S LETTER

Can You Help?

The holidays are approaching again, a time to share with family and friends. We also try to help those less fortunate at this time of the year. Once again we will be collecting non-perishable food items at the December dinner meeting. These will then be donated to an area food pantry. Please be as generous as you can.

There is another area that needs help also. In October, representatives of several scientific societies met with the science director of the Young Women's Leadership Charter School located at 3410 S. State St. in Chicago. This is a middle and high school with a focus on science, math and technology and having a student body that is primarily minority. They are looking for individuals willing to act as mentors to the young women, speakers to come in and give presentations and laboratories willing to host a visit by some of the students. If you are able to help in any way, please call the Section office or email me and I will get you in contact with the school.

Are you gregarious, do you like to meet people? We could use some help greeting people as they arrive for the dinner meeting. Call the office or just introduce yourself and offer to help out at the next meeting you attend.

For those of you who may be interested, the Section has put together a listing of area companies who employ chemists. This is only available through the Section office. You must write or email, giving contact information and the reason that you want the list.

There will be no Job Club at the December meeting but it will resume in January.

May you all have a joyous holiday season. See you at a meeting!

SUSAN SHIH
CHAIR

The Chicago Section's
e-mail address
is
chicagoacs@ameritech.net

CHICAGO SECTION'S PROJECT SEED 2002 PROGRAM

Delliah Redd and Jesus Ruiz presented their research at the SciMix poster session at the ACS National Meeting in Boston in August.

Delliah's poster was entitled, "The Effect of Tomato Sauce Pasta Entrees on Cholesterol, Carotenoid and Fat-Soluble Vitamin Levels in Serum of Prostate Cancer Patients". Her summer research as a SEED I student was done at UIC under the mentorship of Dr. Phyllis Bowen and Maria Sapuntzakis of the Department of Human Nutrition and Dietetics. She is a senior at Farragut Career Academy.

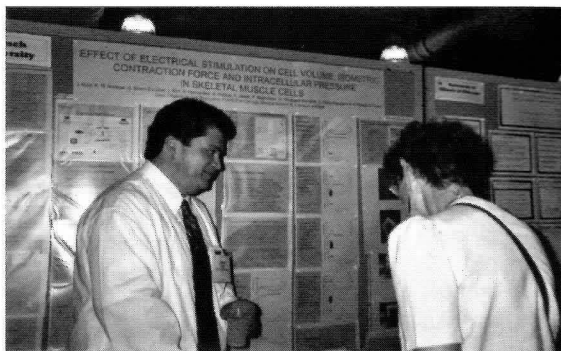
Jesus' poster was entitled, "Effect of Electrical Stimulation on Cell Volume, Isometric Concentration Force and Intracellular Pressure in Skeletal Muscle Cells". His summer research was conducted over several summers as a SEED I and SEED II student at Finch UHS/Chicago Medical School under the mentorship of Hector Rasgado-Flores of the Department of Physiology and Biophysics. Jesus is a junior at Loyola University, majoring in chemistry.

The mission of the Project SEED program is to assure that students from economically disadvantaged backgrounds have opportunities to experience the challenges and rewards of chemically-related sciences.

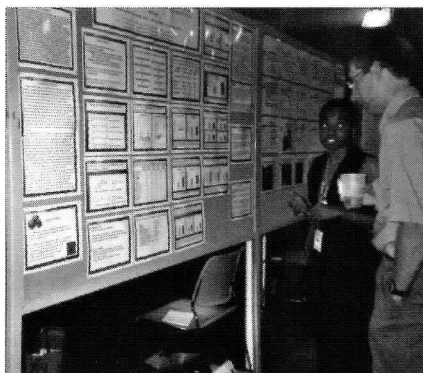
In addition to hands-on research, Project SEED students receive guidance on their career and personal development. Mentors provide strategies for helping students reach their objectives, give feedback, and allow opportunities for growth that may include exposure to key members of an organization. In the case of Delliah and Jesus, each had the opportunity to present their research and meet scientists not only at the National ACS meeting but also at Harvard and MIT while in Boston.

If you or your company would like to donate to your Chicago Section's Project SEED program to sponsor a local student, contact the Chicago Section office at (847) 647-8405.

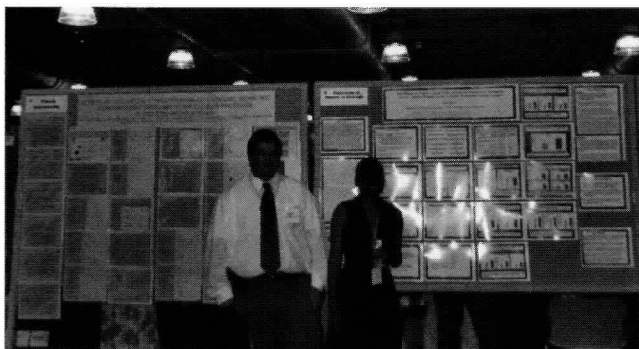
CHICAGO PROJECT SEED STUDENTS AT THE BOSTON MEETING



Jesus presenting his work



Delliah presenting her work



Jesus and Delliah with their posters at SciMix

If you would like to become active in this program, contact Cherlyn Bradley (cbrad1027@aol.com), co-chair of the Section's Project SEED program.

CHERLYN BRADLEY
MARSHA ANNE PHILLIPS

*Have a Happy and Safe
Holiday Season*

PROJECT SEED: HANDS-ON RESEARCH FOR HIGH SCHOOL STUDENTS

You and your organization are invited to apply to participate in Project SEED, the American Chemical Society's social action program that places economically disadvantaged high school students in academic, industrial, and governmental research laboratories for eight-to-ten weeks during the summer.

Project SEED offers high school students two exciting, hands-on research opportunities:

- The **Summer I program** will provide first-time participants (rising juniors and seniors) a fellowship award of \$1,750. They may qualify to present their research at an ACS or other scientific meeting.

- A **second-year program, Summer II**, provides Project SEED Summer I students an additional summer of scientific research. These students will receive a fellowship award of \$2,000. Summer II students are eligible for a travel grant of up to \$100 to present their research at an ACS or other scientific meeting.

Each student does a scientific research project in chemistry or related field under the direct supervision of a scientist/mentor. The students must be economically disadvantaged and must be enrolled in high school or be recent high school graduates; no student who has matriculated in college is eligible. The students must have taken one year of high school chemistry.

You need not have a particular student in mind to apply. Apply now to sponsor a student and the local Project SEED Committee will work with you to obtain a student. Funding for the student will come from the National Project SEED office and/or matching funds from the local Section.

Be sure to visit the Project SEED website for more information:
www.chemistry.org/education/SEED.html

You can also obtain an application form, program guidelines, and other information from your local Section Project SEED co-chair, Cherlyn Bradley at (630) 510-0352, cbrad1027@aol.com or from the National ACS Committee on Project SEED staff at (202) 872-4380.

APPLICATIONS FOR THE 2003 SUMMER PROGRAM ARE AVAILABLE.

APPLICATION DEADLINE WILL BE FEBRUARY 2003.

If you are NEW to the Project SEED program, your willingness to expose students to a scientific environment is one of several steps that will allow students to discover the world of chemistry. The Council Committee on Project SEED office looks forward to reviewing your application.

Since Project SEED's inception in 1968, more than 6,000 talented high school students nationwide have spent the summer conducting research in local chemistry laboratories under the guidance of mentors. Both students and the community benefit. The students, while earning a stipend, find out what chemistry research or development is about and whether it might interest them as a career. These students become role models for younger students and almost all attend college.

For the Chicago area, fewer than 85 students have participated—not because we don't have students that qualify or aren't interested in the program (each year we can find plenty of students), but due to lack of academic, industrial, and governmental scientists willing to be mentors. **We continue to have the few, dedicated scientists who have been involved in the program several years—and we salute you!**

In order to get more Chicagoland students involved in the program, we need two things: 1) more scientists willing to participate as mentors/preceptors to foster the successful continuance and growth of this worthy program in the Chicago area for scientifically promising, but economically disadvantaged high school students and 2) more funding from Chicagoland corporations, foundations, and individuals to sponsor our students.

For you scientists who are NSF, NIH, or PRF grant holders, it is possible that you can get funding to sponsor a Project SEED student within your proposed research programs. Check with the ACS National SEED office at (202) 872-4380.

If you or your company would like to donate to your Chicago Section's Project SEED program to sponsor a local student, contact the Chicago Section office at (847) 647-8405.

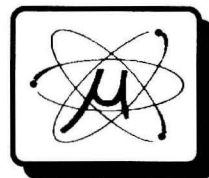
CHERLYN BRADLEY AND CHARLES CANNON, CHICAGO SECTION PROJECT SEED CO-CHAIRS

The mission of the Chicago Section of the ACS is to encourage the advancement of chemical sciences and their practitioners.

CONTACT THE CHAIR

Do you have any questions, suggestions, recommendations, ideas, gripes, complaints, or pet peeves relating to the Chicago Section? Do you want to volunteer, help out, or lend a hand with Section programs or activities? Then contact your Chair. Simply log onto the Section's Web Page at <http://member.ship.acs.org/C/Chicago>, find the green button "Contact the Chair", and send me an e-mail. If I can answer your query I will respond personally. If I can't I will forward your e-mail to someone who can, or try to provide you with a contact—all in a timely manner. The Section belongs to you and the other 5,475 ACS members who reside in the Chicago area (northeast Illinois and northwest Indiana). Only you can make it work for you by being involved. Only you can make it fail by not being involved. I look forward to hearing from you.

SUSAN SHIH
Chair



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SCIENCE HISTORY TOUR 2003

Yes! We will be running another Science Tour next summer. Here is your opportunity to visit Holland and Belgium in the company of a group of most congenial people. Dates are not yet set, but it will probably be from about June 26 to about July 10. We shall end the tour in London, where we will attend a conference at the Royal Society on Robert Hooke. Hooke died in 1703 and this conference will be held jointly by Gresham College and the Royal Society to honor Hooke, an under appreciated genius.

Details of itinerary, dates and cost will be available later, but if you are interested in this trip, e-mail or call either **Yvonne Twomey** or **Lee Marek** (information is given at the end of the article). People are signing up for this trip already, so an early inquiry is advised - numbers are limited.

The broad plans are to begin the tour in Amsterdam, where there are a number of sites of interest in the history of science. The Boerhaave Museum, the Teyler Museum, porcelain manufacturers and brewing interests will all be included. Many aspects of Holland's history as a maritime and trading nation will be studied. Then we will move on to Belgium, with visits in Brussels and the lovely town of Bruges. We will make our way to the coast and travel to England by cross-channel ferry, then pay a visit or two in the south of England - Hooke was born in the Isle of Wight. Our last stay will be in London, in a very nice hotel near Hyde Park. In addition to the RS Conference we will visit other notable science venues in London.

Accommodation will be in comfortable welcoming hotels where all rooms have private bathrooms. Room-sharing arrangements can be coordinated for those persons who are traveling alone, but would like to share a room to save single room supplements. We will have a luxury coach for our use during the time we are on the Continent, and another one in England. Inexperienced international travelers will be given as much help as they need. Those traveling alone will find this to be a friendly and interesting group where it is easy to make friends.

During the tour all land transportation, hotels and breakfasts, at least (on average) one other meal per day - often with a glass of wine, all admissions to museums, lecture fees, and taxes are included. Your additional expenditure will be for meals when the group does not eat together, incidentals such as theater tickets and personal expenditures. **TRANSATLANTIC AIR-FARE IS NOT INCLUDED.** The cost of the 2003 tour is

not yet calculated, but for your guidance, the 2002 tour cost was \$2475.

Graduate credit is available. CPDUs are also available for teachers.

For further information and/or to be put on the mailing list about the 2003 tour, contact either:

Yvonne Twomey, 841 Kinston Court, Naperville, IL 60540 Tel: 630-961-9811 e-mail : ytwomey@mindspring.com, or Lee Marek, Tel: 630-420-7516 e-mail: LMarek@aol.com

Go to the following pages for a web presentation on our past trips—

<http://www.ncusd203.org/north/depts/science/chem/marek/>

HOSPITALITY MENTORS

The Hospitality Committee is looking for Chicago Section members who enjoy helping new members become acquainted with the Section. You will be paired up with a new member who would like to learn about the Chicago Section and have a person to join them at a monthly dinner meeting. It is always hard to feel comfortable when you are new and don't have anyone to talk at a monthly dinner meeting. Let's show others how warm the Chicago Section can be! If you are interested please contact Fran Kravitz at (630) 293-4122 or e-mail FK1456@aol.com.

FRAN KAREN KRAVITZ
HOSPITALITY COMMITTEE CHAIR

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ALMA E-NEWS

An Idea for Better Safety Inspections

Almost every lab performs a weekly or monthly inspection to verify the safe condition of the workplace. Generally, an inspection team is formed from laboratory staff on a rotating basis to verify items such as operation of eyewash stations, fire extinguishers, waste containers, etc. as well as record any hazardous conditions that are observed. The problem with this approach is that people tend to overlook the familiar so that staff members can miss the hazards that they are exposed to everyday as part of the normal routine. One idea to overcome this problem and gain additional value is to swap inspection teams with a neighboring lab for one of the monthly cycles. By bringing fresh eyes into the lab, the hazards associated with accepted practices may be spotted and at the same time the teams can look for new ideas for safety improvements for their own labs. This arrangement is a win-win situation in that both labs correct persistent problems that otherwise would go unnoticed and both collect ideas to enhance safety. These cooperative exchanges could be arranged by networking with other managers through local ALMA or ACS section meetings.

Past ALMA (Analytical Laboratory Managers Association) e-News editions are available at <http://www.labmanagers.org/>.

If you have any comments, cost saving suggestions, opinions, etc. let me hear from you.

WAYNE COLLINS

wayne.collins@bpsolvaype.com

NEW ELEMENTARY TEACHER PROFESSIONAL DEVELOPMENT PROGRAM

Wonder & Explore, a multifaceted resource designed to help K-8 elementary teachers better understand physical science concepts and develop an inquiry-based teaching approach, will be available this summer from the ACS. The components of this resource include both in-person and online professional development workshops for teachers, a physical science activity book with accompanying CD-ROM, and an extensive archive of activities on the web. For more information on the Wonder & Explore program, teachers should contact elemsci@acs.org to receive information on a special introductory offer.

ANAGEN THERAPEUTICS OPENS LABS IN CHICAGO TECHNOLOGY PARK

Anagen Therapeutics Inc., a biopharmaceutical company formed to develop and commercialize important discoveries made at the University of Chicago, has opened two new research labs at the Chicago Technology Park in the Illinois Medical District. This venture was founded by Dr. Shutsung Liao, professor of biochemistry and molecular biology at the University of Chicago's Ben May Institute for Cancer Research.

The new research laboratories are directed by Dr. Ching Song, Anagen's team leader, Nuclear Receptor Research. Dr. Song is responsible for development of novel agents known as lower x-receptor modulators (LXRs). Such compounds have been found to play an important role in treating neurodegenerative disorders such as Alzheimer's disease. LXRs may also foster new connections among neurons following brain damage from stroke or trauma and potentially improve the extent and speed of recovery.

Another UIC discovery under development by Anagen is epigallocatechin-gallate (EGCG), a highly active natural component in green tea that appears to have wide therapeutic benefits for a variety of hormone-related illnesses, including certain skin diseases and prostate cancer.

The Chicago Technology Park was formed in 1987 by the State of Illinois, UIC, and the Illinois Medical District Commission to provide businesses with attractive, affordable facilities in a research and technology environment. The Tech Park is near medical institutions such as the University of Illinois-Chicago and Rush-Presbyterian-St. Luke's Medical Center. Anagen's laboratories are housed in the park's Research Center, a 57,000 square-foot facility featuring 40 state-of-the-art biotechnology wet labs.

Anagen Therapeutics Inc. is headquartered in Northbrook, IL. Additional information is available at www.anagentherapeutics.com.

SCHOLARSHIPS

The Illinois Chemical Education Foundation Scholarship Program provides \$2,000 Undergraduate Scholarship Awards for qualified Illinois residents enrolled in chemistry, biochemistry or chemical/environmental engineering at post-secondary educational institutions located in Illinois. For more information contact the Chemical Industry Council of Illinois at 847-823-4020, <http://www.cicil.net>.

AWARD

Congratulations to **Dr. Claude A. Lucchesi**, recipient of the **2002 ALMA Distinguished Service Award for Laboratory Management** sponsored by Agilent Technologies. Claude is a Senior Lecturer and Analytical Consultant of Analytical Chemistry of the Department of Chemistry at Northwestern University.

The ACS Committee on Chemists with Disabilities announces the latest edition of

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DEADLINES FOR CHEMICAL BULLETIN

Please submit all Chemical Bulletin copy to the editor before the deadlines listed below for each issue. Articles can be emailed to the **editor, Cheryl N. Bradley, cbrad1027@aol.com**.

Since we like the Bulletin to be as timely as possible, we need the lead time indicated. You can help by early planning and submission of your information or articles.

| Issue | Deadline |
|---------------|----------|
| January 2003 | 11/29/02 |
| February 2003 | 2/27/02 |
| March 2003 | 1/17/03 |
| April 2003 | 2/21/03 |
| May 2003 | 3/7/03 |
| June 2003 | 4/25/03 |

STARTING WITH SAFETY NOW AVAILABLE ONLINE

The highly popular ACS Video Course, *Starting with Safety*, has been adapted for delivery via the Internet. The Internet version includes all of the materials from the original Video Course including the video scenes and the *Teacher's Guide*. As an added bonus, the complete ACS Video Course, Seeing the *Light-Eye* and *Face Protection*, is also included in this ACS Internet Course.

Now you and your students can access this valuable training program from any computer connected to the Internet at any time-day or night. (We do recommend a relatively high-speed connection, such as a DSL, cable modem or higher. And you will need to install the Flash 6 player to view the videos).

This program is designed to be used as part of a standard high school or introductory college chemistry curriculum that is taught by an experienced chemistry teacher. The program is NOT meant to be a stand-alone training course. Students should only use this program under the supervision of a qualified teacher.

For complete details about this program, visit the American Chemical Society website at <http://chemistry.org/elearning> and click on the link to *Starting with Safety*.

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COLUMBIA COLLEGE'S CANCER RESEARCH LAB

Back in May of this year, Columbia College's president Dr. Warrick L. Carter hosted a reception honoring Dr. Roald Hoffmann, Nobel Laureate in chemistry, and Dr. Zafra Lerman, head of the college's Science Institute. Dr. Hoffman, a Holocaust survivor who is also a poet, playwright, and essayist, was a participant in a Science Institute symposium on "How Advances in Sciences and Art Enhance Your Life."

The symposium celebrated the opening of the Science Institute's new tissue culture laboratory to be used for cancer research. The laboratory will support the ongoing efforts of Dr. Kenneth Ilio, a cancer researcher and Science Institute facility member.

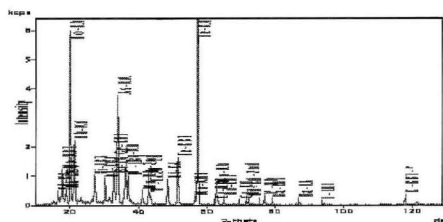
Students at Columbia, the country's largest visual, performing, and media arts college, assist in the lab as part of the required science courses. As part of their classes in immunology, physiology, and reproductive biology, the students assist Dr. Ilio in the culture of rat prostate cells. At the same time, they learn the scientific method, basic cell biology, and the concept of cellular differentiation. They also visualize what they learn about the subject in the medium of their major, such as choreographing a dance, writing a poem, acting out a theater piece, or creating an animated video.

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HAZARD COMMUNICATION

Introduction

Chemical Safety conjures up, in a very great number of people, images of spills, explosions, fires, and environmental damage. These are dramatic incidents! In reality, however, there are other incidents in the arena of Chemical Safety that are not as dramatic or obvious. Yet, health damage may occur from long term exposure or sudden reaction from a short-term exposure to hazardous chemicals. This, then, is the reason why it's important to recognize and effectively communicate hazards of the most common types of chemicals. Because of this, and for the sake of Chemical Health and Safety, individuals who handle chemicals must be provided with information related to their use. This can be achieved by consulting applicable Material Safety Data Sheets (MSDSs) (which are elucidated below) and by familiarizing the user of chemicals with the Occupational Safety and Health Administration's Hazard Communication Standard. This standard (OSHA 29CFR1910.1200) is considered to be the mother of all safety regulations! This consideration is based on its comprehensiveness and its application to all types of hazardous chemicals.

As practicing chemists, who use chemicals on a daily basis, we should be familiar with the physical and chemical properties of these materials. Even with this knowledge, all chemicals should be handled with respect for their known or potential hazards. The potential for injury and/or illness from improper handling and exposure is great. Thus, effective hazard communication is vitally important and, consequently, an accurate comprehensive communication program is essential. To fully understand hazard communication, you have to know the types of chemical-related hazards that you might encounter. Information is your most valuable tool!

Labels

First of all, every container of hazardous materials must have a label with proper identification. This means the container label must be: (1) written in English; (2) legible (not smeared); (3) prominently located on the container; and (4) listed with warnings about the type and classification of the chemical hazard associated with the product. Container labels generally convey hazard information that is used to produce Material Safety Data Sheets (MSDSs) for the products.

The process of identifying hazards starts with the manufacturer who is responsible for determining the hazards

of the product. In the case of multiple hazards, the label only indicates the most immediate one or two. Before using any chemical, it's imperative that the label is read and precautions are heeded.

To better understand effective hazard communication, you must be acquainted with four categories of chemical related hazards, e.g., toxic, flammable, corrosive, and reactive.

Material Safety Data Sheets (MSDSs)

A Material Safety Data Sheet must be readily available for every hazardous chemical that is used. The MSDS represents a starting point reflecting information known at the time of manufacture. However, there is a specific list of items that are required to be on an MSDS. This list provides detailed information about the product and includes, at a minimum, precautionary data in critical areas such as: product identification; hazardous ingredients; physical and chemical properties; fire and explosion characteristics; reactivity information; health hazards; and the use of personal protective equipment (PPE). For example:

—**Chemical Name:** Usually the IUPAC (International Union of Pure and Applied Chemistry) or Chemical Abstracts Service (CAS) chemical name is given. Nonetheless, a common name for the chemical may be used.

—**CAS Registry Number** is a number assigned to each chemical. This number is not required by the Occupational Safety and Health Administration (OSHA) but most state Right to Know Laws require it.

—**Date Prepared** is the date of preparation or latest update.

—**Composition of Mixtures** includes all hazardous materials over 1% and all carcinogens over 0.1% OSHA PEL is the permissible exposure limit. It is the time weighted average (TWA) concentrations that must not be exceeded during an 8-hour work shift of a 40-hour workweek.

—**ACGIH PEL** is the maximum exposure limits recommended by the American Conference of Governmental Industrial Hygienists. The ACGIH list is updated each year. Whereas, the OSHA PEL is not.

—**Health Effects** (Health Hazards): Found in various forms, a health hazard refers to a chemical's ability to cause immediate or long term health effects after an exposure. Irritants, sensitizers, corrosives, and toxics are some types of health hazards. **Irritants** cause rashes or inflammation at the point of contact. **Sensitizers** can cause allergic reactions after repeated exposure, similar to the way people may react to repeated bee stings. **Corrosives** have the potential to cause redness, inflammation, irritation, and

even severe burns. **Toxics** are substances that can cause short-term or long-term health effects and are suspected of causing cancer, disease, or injury under certain conditions.

—**Fire and Explosion Hazard Data** includes:

—**Flash point** is the lowest temperature at which its vapor can be ignited by a flame when the chemical is heated in a special apparatus.

—**Autoignition temperature** is the lowest temperature at which a chemical ignites spontaneously in air.

—**Flammability limits** are the minimum and maximum vapor concentrations in air below and above which they cannot be ignited.

—**Reactivity Hazards:** Some chemicals react violently when mixed with other chemicals.

STEVE SICHAK

Co-Chair, Environmental & Lab Safety

2003 PRESIDENTIAL GREEN CHEMISTRY CHALLENGE AWARDS

The U.S. Environmental Protection Agency (EPA) is currently seeking nominations for its 2003 Presidential Green Chemistry Challenge Awards. These Presidential-rank awards recognize outstanding new chemical technologies that incorporate the principles of green chemistry into chemical design, manufacture, and use, and that have been or can be utilized by industry in achieving their pollution prevention goals.

Any individual, group, or organization, both nonprofit and for profit, including academia, government, and industry, may nominate a green chemistry technology. Self-nominations are welcome. Each nominated technology must have reached a significant milestone within the past five years in the United States. Nominations **must be postmarked by December 31, 2002**. For information on how to enter the competition, visit the Presidential Green Chemistry Challenge home page at <http://www.epa.gov/greenchemistry/presgcc.html>.

CHEMICAL SAFETY WEBSITE

The American Chemical Society Committee on Chemical Safety web site has a new look, new content, and a new url. The new web address is <http://chemistry.org/committees/ccs>. Check it out for publications on laboratory safety for K-12, colleges, industrial labs, and small businesses.

HOW TO BE MARRIED TO A CHEMIST

by JEANETTE SHAMES FIELDS

Being a chemist's spouse is like taking a long trip to a foreign country that has no guidebook. There's a strange language, filled with the likes of quinuclidines, mercaptans, and isopropylidene bisphenols. And there's no Berlitz course!

Way back in the days when there were only 92 elements, I, a freshman at the University of Chicago, was swept off my unsteady, saddle-shoed feet by a young genius chemist! Genius? Of course! Hadn't he received his Ph.D. at 21? Our whirlwind courtship included a glass menagerie he curled out of glass rods and tea in his lab. ("Liquor may be quicker but a beaker can freak her.") So we wed.

Because he was a post-doc research assistant, I qualified as a faculty wife. That first faculty wives' tea is still branded on my psyche. The setting: the posh home of Morris Kharasch, Chairman of the Chemistry Department. The characters: the formidable, pearl-bosomed faculty wives. I arrived breathlessly, with a large volume of Schlesinger's Introduction to Chemistry under my arm. Ostentatiously setting the book down, I answered, "Yes, I'm taking chemistry. I think it's SO important for a wife to be able to discuss a husband's work with him."

Dead silence. A few polite smiles. Some turning of heads. This was only my second week of school and I was so proud that I'd already learned that a valence is not part of a curtain.

Now, many decades later, I feel I've learned a few other hints on being a chemist's spouse. My husband, Ellis Fields, is double-bonded to the American Chemical Society. He hasn't missed a national meeting since 1939! As he's served the organization in his many capacities, including president in 1985, we've made friends all over the world. But more about them in a minute.

First, you must realize that the most important things in a chemist's life are his fluffy white crystals. If he comes home from the lab sullen and angry, you know that the stuff he's been working on for these past three months has turned into a big black glob. Be patient. Tell him that fluffy white crystals are vastly overrated. Remind him how he hated the stuff when he had to shovel tons of it last winter.

Second, a chemist's spouse must be experimental. It helps to have the skin of a rhinoceros because you'll be asked to test, early on, his own formulations for face creams, perfumes, and emollients. "What, pay \$52 for that little jar?

(continued on page 11)

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(continued from page 10)

I'll whip up better for you in the lab." We have gone through mouthwash, shampoo, and wine, the last being the most successful. Hundreds of friends are willing to help us with that experiment.

Third, you must learn endurance. Roughly 999 hours of my life have been spent listening to lectures on hexachlorocyclopentadienes and omega bromoacetophenones. I recall several excruciating evenings. One Willard Gibbs Medalist talked for more than two hours on the synthesis of vitamin B12. Seated at the head table, I managed to look interested for the first half-hour; by the second, I had a vacant stare, practicing yoga. By the third, I feigned faintness, and dashed to the ladies' room, to be greeted by other refugees. Upon returning, was dismayed to see the speaker looking fresh and undaunted; his audience, ashen. After 175 minutes, I fiendishly thought of igniting the tablecloth so I could yell "fire".

Sometimes, I was fooled by the after-dinner speaker's selected title. I thought "charge-transfer complexes" sounded especially stimulating. The famous Nobel laureate, who showed that it wasn't, was dullsville. Talking in a dry, deadly monotone for years, he showed 1334 slides of squiggles and equations. At least it was dark; when the light went on, it revealed a room half-full of dozing chemists.

"The Liquid State" was delivered by an erudite authority who spoke in mathematical abstractions that only another physical mathematician could love. This time I yearned for slides-but no. He kept busy covering three blackboards with equations. As far as I was concerned, the only liquid state that mattered was the martini I was yearning for.

I was delighted to learn that a whole new field has developed around Buckminsterfullerenes—a recent discovery of 60- and 70-carbon-atom molecules from soot. I hear they're shaped like geodesic domes. As I am an architecture buff, the name of Buckminster Fuller means a lot more to me than pyrolytic products and polynuclear aromatic. Now if we could only get Frank Lloyd Wright in there somewhere!

Beware, too, of the introductions to people who need no introductions. Because the honored guest cost big bucks to bring in, the introducer feels compelled to justify the cost by putting it on thick. Paul Bartlett, for instance, took 30 minutes to introduce Robert C. Woodward. Thus eulogized, Woodward felt compelled to give us our money's worth . . . for almost three hours! We chemists' spouses who are non-chemists have unparalleled problems. Few of us speak "chemicalese" even as

a second language. Unpronounceable, unreadable, and incomprehensible, the nomenclature puts us on an island unknown to other professional spouses. At least medical wives can relate to a bronchoscopy or mastectomy; legal wives surely have watched "The Paper Chase" and "L.A. Law."

Chemists are visibly identifiable. A lead giveaway clue, were one participating in "What's My Line," are the small holes in his or her clothing. Lab coats are supposed to be the cure-all cover-up, but they're not. Neckties, usually the Countess Mara gift from last Christmas, are the most vulnerable. But shirts, socks, and shoes, even underwear, are not safe.

Because of these unique tribulations, chemists' spouses are understandably attracted to each other. Way back in the 50's, one wife confided that *Chem Abstracts* had taken over her bookshelves, closets, basement, and attic. When there was no space left in their six-room bungalow, she gave the ultimatum: "It's *Chem Abstracts* or me!"

Another friend who married a professor of chemistry was seduced into typing his textbook. Five years and three revamps later, she asked, "Why didn't someone warn me?" When asked if it was a labor of love, she admitted it was a love of money. The book was not exactly a sequel to *Gone with the Wind*, and her husband claims she made more by typing than he did on royalties.

Chemists, by nature, are likely to be rational, pragmatic, and somewhat introverted. They are often attracted to spouses who are "people persons", which means we chem-spouses have to do double duty in the social department, keeping up Christmas lists, inviting students to dinner, and remembering the names of last week's dinner partners. Which reminds me: I was terrified the first time I sat next to Linus Pauling, the famous double Nobel. But my fears were unfounded; he was a pussycat. Over the years, the list of such encounters has grown to include a score of other Nobelists, all of whom talk proudly about their families and are

interesting conversationalists.

International meetings provide a wonderful opportunity to meet people you can visit next summer in Milan. Which recalls the time we visited that beautiful city to attend a thermodynamics conference. With our knowledge of Italian limited to "multo bene", we somehow ended up at the speakers' table; they mistook Ellis for a plenary speaker, who fortunately never arrived, so we got to swig soave ad libitum.

In the old days, it was easy to identify the foreigners. The Russians had ill-fitting suits and their names were always Yuri; they said "nyet" and "da" a lot. The Italians wore elegantly tailored suits and paid more attention to the ladies than to the lecturers. The English were much in demand because they were charming, witty, spoke English, and we all love to visit England. While we were living in England in 1962-63, we met many "queen bees", the wives of the prestigious professors. Their saris were bought in India, their shoes in Italy, and their jewelry in Copenhagen. These ladies had developed tremendous charm and memory for names; they skillfully brought together an Afghanistani microbiologist and a Nob Hill nobody.

Today, happily, it's a whole new ball game. *Chem Abstracts* is "on line". There are no more Women's Program Committees. At national meetings, the tours are filled with "accompanying others" and hundreds of women chemists.

It has been an exciting life. Like the old slogan "better things for better living through chemistry," we have made lifelong friends and traveled extensively. I have learned to be more creative; I now know 43 different things to do with etched neckties. And, in some ways, they've brought our lives closer together.

JEANETTE FIELDS originated the tour program of the Chicago Architecture Foundation, gives architectural tours and lectures, writes an architectural column for a local newspaper, and has written several architectural books.

—Originally published in *Chemtech*, February 1992.

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CALENDAR

November 18-21, 2002: 2002 Eastern Analytical Symposium in Somerset, NJ. Contact the Executive Secretary at (610) 485-4633, easinfo@aol.com, or go to the website www.eas.org.

November 19, 2002: The Chicago Chromatography Discussion Group (CCDG) will meet at the Café La Cave, 2777 Mannheim Road in Des Plaines. The restaurant is located 1 block north of Higgins Road on Mannheim. The Radisson Hotel is across the street. Dinner is \$35. Social hour starts at 5:30 p.m., dinner at 6:30 p.m. The after-dinner speaker is Kara Stefanson who will speak on Forensic DNA Analysis. For further information, call CCDG at (847) 588-3324 or go to <http://www.ccdg.org>.

November 23, 2002: The Museum of Science and Industry (MSI) offers Saturday Science Clubs for students in grades 6-9. Morning Clubs run from 9:30 am to 12 noon; afternoon clubs from 1:30 to 4 pm. The Fall Module, "Magnets to Motors," is offered at MSI, 57th Street and Lake Shore Drive. Contact Nina Nolan, Education Coordinator, (773) 684-9844 ext. 2273, nina.nolan@msichicago.org. Also go to website <http://www.msichicago.org>.

December 8-12, 2002: ASTM Committee D02 on Petroleum Products and Lubricants will meet at the Marriott Anaheim, Anaheim, CA. Contact David Bradley at (610) 832-9681; dbradley@astm.org.

December 27, 2002: The Museum of Science and Industry (MSI) offers Saturday Science Clubs for students in grades 6-9. Morning Clubs run from 9:30 am to 12 noon; afternoon clubs from 1:30 to 4 pm. The Fall Module, "Magnets to Motors," is offered at MSI, 57th Street and Lake Shore Drive. Contact Nina Nolan, Education Coordinator, (773) 684-9844 ext. 2273, nina.nolan@msichicago.org. Also go to website <http://www.msichicago.org>.

January 24, 2003: The Chicago Section American Chemical Society's general meeting speaker will be Dr. Daniel W. Armstrong, Iowa State University. His talk will be "Separating Microbes in the Manner of Molecules". Complete information will be in the January 2003 Chemical Bulletin.

February 21, 2003: The Chicago Section American Chemical Society's general meeting speaker will be Gary Kitmacher, NASA, Johnson Space Center, who will speak on "Views from Space". Further information as the date approaches.

March 14, 2003: The Chicago Section American Chemical Society will host the Public Affairs program. Stay tuned for further information as the date approaches.

March 23-27, 2003: The 225th ACS National Meeting will be held in New Orleans. For further information, call the National ACS office at (800) 227-5558, go to www.chemistry.org, or send e-mail to natlmtns@acs.org.



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