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A Joint Publication of the Southern California and
San Gorgonio Sections of the American Chemical Society



International Year of
CHEMISTRY
2011

**Southern California Section
Dinner Meeting
“Contaminants of Emerging
Concern in
Treated Wastewater”**

**Speaker: Eric Nelson
East Los Angeles College
March 3, 2011**

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**San Gorgonio Section
Free Academic Laboratory Workshop
Chaffey College, Rancho Cucamonga, CA
March 4, 2011**

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Southern California Section

Chair's Message—Joe Khoury



“Happiness begins where selfishness ends.”

Earlier this month a colleague gave me a DVD about John Wooden, the famous basketball coach who used collected wisdom and experience to inspire young men to rise to excellence. And stay there.

“Ability can get you to the top, but it takes character to keep you there.”

This month, our local section is hosting the High School Chemistry Olympiad at over 25 high school campuses covering all of Los Angeles County. Dr. Jerry Delker, a recently retired research analytical chemist, has led this effort for over 12 years. The purpose of the Olympiad is to “stimulate students to achieve excellence in chemistry” and “encourage additional learning at a formative time” in their lives. Jerry has a passion for youth and, through this local effort, has found a way to inspire others to rise to excellence and do their best to become the best that they can be—Wooden’s definition of success.

“The worst thing you can do for those you love is the things they could and should do for themselves.”

The IYC2011 celebration and our local section’s 100th Anniversary were kicked off at last month’s dinner meeting and will continue with an event sponsored by the Chemistry Faculty of East LA College and their amazing *Priori of Biology and Chemistry Club*. I’ve seen this club in action, and what they are doing for themselves is a testament to the hard work and inspiration of their mentors. The talk by Eric Nelson, a chemist from the LA County Sanitation Districts, is on the hot topic of emerging contaminants in treated wastewater (see page 3).

“Don’t let making a living prevent you from making a life.”

Have you been to a Science Café? The late Paul Shin was an avid promoter of the Science Café, a face-to-face conversation between the general public and a scientist about a current topic in a casual setting, like a pub or coffeehouse. If you have a passion for outreaching to the public, the Science Cafe program needs you to help continue Paul Shin’s legacy. Please contact us.

Next month, we will be formally recognizing someone who has already made outstanding contributions to chemistry with the Tolman Medal.

“No person was ever honored for what he received. Honor has been the reward of what he gave.”

With thanks to John Wooden.

- Joe Khoury, Chair
JKhoury@lacsds.org

Southern California Section

March Dinner Meeting

Thursday, March 3rd, 2011

**East Los Angeles College
Building G1 (Administration), Room 301 A/B
1301 Avenida Cesar Chavez
Monterey Park, CA 91754-6099**

“Contaminants of Emerging Concern in Treated Wastewater”

**Speaker: Eric Nelson
Los Angeles County Sanitation District**

6:00 pm check-in

6:45 pm dinner

7:30 pm presentation

Abstract: There has been considerable interest lately related to the presence of pharmaceutical, personal care products (PPCPs), hormones, and other endocrine disrupting compounds (EDCs) in treated wastewater. This class of dissolved organic compounds is frequently referred to as contaminants of emerging concern or CECs. Because treated wastewater is increasingly being used for reuse and groundwater recharge, especially in the southwestern United States, there is a need to further understand occurrence, concentrations, sources and environmental impacts of CECs. In addition, surface water discharges may impact aquatic life, and the toxicity of multiple CECs on diverse species is largely unknown.

Biography: Eric Nelson is a research chemist in the San Jose Creek Water Quality Laboratories at the LACSD. The chemistry research group investigates various aspects of chemistry associated with treating wastewater that among other things include identifying/measuring effluent constituents and supporting treatment technology investigations.

Eric graduated from Haverford College in Pennsylvania with a B.A. in Chemistry. His M.S. is from the University of Maryland's Marine, and Estuarine and Environmental Sciences program, with a concentration in environmental chemistry. His graduate research involved the fate transport of persistent organic pollutants (POPs), i.e. PAHs, PCBs and organochlorine pesticides, in the Chesapeake Bay area. He has experience working in contracts
(Continued on Page 4)

Southern California Section

March Dinner Meeting (Continued from Page 3)

laboratories, ran an environmental laboratory at Rutgers University, (NJ) and worked for Ecology and Environment, Inc., an environmental consulting company and U.S. EPA subcontractor. Some projects he has participated in include air sampling and coordination for EPA cancer cluster investigations in California's Central Valley, emergency response to 9/11 anthrax clean-up in congressional office buildings and fate/transport studies of POPs in Baltimore/Washington D.C and New York/New Jersey areas. Eric has been with LACSD for the past 6 years.

His current research at the LACSD involves solid phase extractions and analysis of pharmaceutical, personal care products (PPCPs) and endocrine disrupting compounds (EDCs). Eric's recent work concerning daily cycles of PPCPs and EDCs in treated wastewater was recently published in the ACS journal *Environmental Science and Technology*.

Cost: The food will be catered by Steven's Steakhouse. There will be a buffet with a choice of lasagna or a chicken entrée, salad and dessert. The cost is \$17 including tax and tip, payable at the door with cash or check.

Reservations: Please call Nancy Paradiso in the Section Office at (310) 327-1216 or email office@scalacs.org by Tuesday, March 1, 2011. *Note: Please honor your reservation. If you make a reservation and do not attend, you will be liable for the cost of the dinner.*

Directions: A campus map and directions to the campus are available at <http://www.elac.edu/collegeservices/campusmaps/drivingdirections.htm>. Free parking is available in the stadium lot or the baseball field lot. No citations will be given from 5:30-9:30. See campus map on the website. Parking is also available for \$2 in the lot adjacent to the G1 Building.

Science Fair Judges Needed

The Intel International Science and Engineering Fair (ISEF), the world's largest international pre-college science competition, is coming to Los Angeles! ISEF will be held at the Los Angeles Convention Center from May 8-13, 2011 (www.societyforscience.org/intelisef2011). More than 1,600 high school students from nearly 60 countries will participate, and 20-30% of these high school student finalists will file patent applications on their projects. This is not your grade school science fair! The Southern California Local Section will be representing the ACS at this event and we need five additional judges. If you are interested in acting as a judge (May 10th and 11th), please contact us at office@scalacs.org. You will be reinvigorated by your participation, while providing an invaluable service to this next generation of scientists and citizens.

Southern California Section



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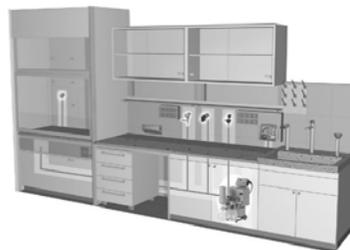
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Expanding Your Horizons Conference

The Expanding Your Horizons Conference for middle school girls will take place on **April 2, 2011** from 8:45 am to 2:45 pm at Mount St. Mary's College Doheny Campus, Los Angeles.

Expanding Your Horizons is a career day supported by SCALACS and organized by MATH/SCIENCE INTERCHANGE to inform young women about careers in math- and science-related fields. The conference is intended for girls in grades 5-8. There are hands-on workshops for girls as well as parents, teachers and counselors. For more information, please go to www.expandingyourhorizonsla.org. Since this is a conference for girls, women volunteers to help out for the day are very welcome. If you would like to volunteer, please contact Dr. Eleanor Siebert at esiebert@msmc.la.edu.

Southern California Section

Section History Project Part One: The Early Years (1901-1925)

February 11, 2011 was the 100th anniversary of the Southern California Section. Barbara Belmont wrote the following articles in 2001 for our 90th anniversary. We think the series bears repeating 10 years later! Enjoy Part 1 of the series:

The setting is Los Angeles, California, in the early 1900s. Although there is no natural harbor, and an inadequate supply of fresh water, the population of 100,000 is steadily growing, attracted by the mild climate and the possibilities a new life has to offer. The major industries are agriculture (orange groves), mining, reclamation, and construction. Chemists are entrepreneurs and assayers, eking out a living as consultants, or making sugar, soap, cement, and asphalt. There are four little colleges where chemistry of any consequence is taught: University of Southern California, Occidental, Throop (now Caltech), and Pomona. An electric railway system radiates from downtown Los Angeles to San Bernardino, Santa Ana, San Pedro, San Fernando, and Pasadena, making travel to and from Los Angeles logistically reasonable.

It is 1901, and eight chemists meet together in an office at the Los Angeles Soap Company. They decide to call themselves the Los Angeles Chemical Club, and meet monthly over lunch and beer to discuss things they have learned that might result in a prosperous collective manufacturing venture. By 1903, the group has doubled in size, and they now call themselves The Los Angeles Chemical and Metallurgical Club to be more inclusive of the member assayers who earn their living averting mining scams and swindles.

By 1910, these monthly meetings have grown to 20-25 people. Someone is always prepared to give a brief review of his own work, after which follows a free-for-all discussion or good natured argument about whether the speaker knows what he is talking about. Inspired by a visiting entourage of American Chemical Society officials earlier in the year, club member Dr. Laird Stabler, USC Professor, oil refinery consultant, and ACS member originating from Berkeley California, petitions the American Chemical Society to establish a local section in Los Angeles. On February 11, 1911, the newly chartered Southern California Section of the ACS, consisting now of 60 members, holds its first official monthly meeting. The meeting topic, "Our Smoke Nuisance", is about the Los Angeles basin's problem with atmospheric haze due to smoke particulate.

By 1914, the year the Panama Canal is completed, the first wharf of the 15-year-old San Pedro Harbor construction project opens. San Pedro, suddenly 8000 miles closer to the Atlantic coast, becomes the busiest harbor on the West Coast. Los Angeles begins to bustle with business. Luckily, the prior year (Continued on Page 7)

Southern California Section

History Project (Continued from Page 6)

saw completion of the Owens River project, which brought 26 million gallons per day of drinking water to thirsty Los Angelenos. Also in 1914, the area of the Southern California Section's activities expands from a 75 mile radius around LA, to include the entire south half of the state.

During World War I, the Lockheed and Donald Douglas aerospace plants are established in the area. Also established during this time (1917) is the first Southern California Section High School Chemistry Contest. The winner is from Nordhoff High School.

Oil is discovered all under the basin. The population soars to 1 million by 1920, 2 million by 1930 due to the resulting real estate boom. Chemists are in greater demand and can find employment in the oil industry, aerospace industry, and the growing eastern-transplant chemical manufacturing industry. Southern California ACS membership has climbed from 60 in 1920 to 450 in 1925. The American Chemical Society holds its National Convention in Los Angeles in 1925. Angelenos begin their courtship with the automobile, adding exhaust to the notorious particulate pollution problem in the Los Angeles basin.

Undergraduate Research Conference

The 2011 Southern California Undergraduate Research Conference in Chemistry and Biochemistry will be held at the University of California, Santa Barbara on Saturday, April 23, 2011. The deadline for registration and abstract submission is Friday, March 25, 2011. For registration, abstract submission and meeting information, please contact Kalju Kahn at kalju@chem.ucsb.edu.

High School Olympiad

Local competition for the ACS High School Chemistry Olympiad will be **March 16th and 17th** at various high schools around Los Angeles County. Winners of the local exam will be invited to participate in the National Exam on **April 16th** for a chance to be part of the International Olympiad in July in Ankara, Turkey. The High School Awards Banquet is **June 3rd** at Mount St. Mary's College. Encourage your local high school to participate. Contact the office for registration forms or visit our website at www.scalacs.org. The deadline for registration is March 4th.



This Month in Chemical History

Harold Goldwhite, California State University,
Los Angeles
hgoldwh@calstatela.edu

What would you expect to find inside a textbook titled “Engineering Chemistry”? If, like me, you’ve taught chemistry to generations of budding engineers you might guess that there would be an overview of introductory general chemistry plus some materials science, possibly heavy on physical properties, states of matter, and some thermodynamics. I’m afraid I posed a trick question without giving you all the facts. This particular textbook was lent to me by a colleague who is retiring and was moving his books out of his office. This copy of “Engineering Chemistry” 3rd. edition was authored by Thomas B. Stillman M.Sc., Ph.D., Professor of Analytical Chemistry in the Stevens Institute of Technology, and was published by the Chemical Publishing Company of Easton Pa. in 1905. The book is subtitled “A Manual of Quantitative Chemical Analysis for the use of Students, Chemists, and Engineers.

Thomas B. Stillman obtained his B.S. at Rutgers in 1873 (Phi Beta Kappa) and was an assistant at Stevens from 1874-76 while he earned an M.Sc. from Rutgers. He traveled to Wiesbaden in Germany and from 1876-79 worked in the laboratory of Fresenius. To quote from “A History of Analytical Chemistry”, H.A. Laitinen and G.W. Ewing eds. (ACS 1977), “Karl Remigius Fresenius (1818 – 1897) is generally recognized as the leader in the development of chemical analysis ... during the second half of the 19th. century.” So Stillman learned from the best. After a period as an independent consultant he joined the faculty of Stevens Institute where he was a productive and successful teacher and author. His “Engineering Chemistry” first appeared in 1900 and is a manual of advanced analytical chemistry applied to the materials used by engineers. It includes 139 engraved illustrations, many of which caught my eye.

In a chapter on the determination of copper in copper sulphate (Stillman’s spelling; when did f replace ph in the name of element number 16 in the U.S.?) the methods include gravimetrically by precipitation as copper oxide; volumetrically with potassium cyanide solution; and as metallic copper by electrolysis. As an alternative to the usual primary cells in this last procedure Stillman suggests the use of Guelcher’s thermoelectric pile, a piece of equipment I had not previously encountered. The pile, which is illustrated, looks somewhat like an old-fashioned radiator. It runs on natural gas which is used to heat the 66 elements of nickel and an antimony alloy. The thermoelectric current is delivered at 4 volts and 3 amperes, and the
(Continued on Page 9)

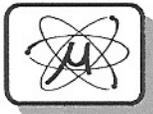
This Month in Chemical History

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pile consumes 170 liters of gas per hour. I'm too lazy to calculate the efficiency of this apparatus – but it probably won't be used as is in an electric car.

The text includes many analyses that you're unlikely to find in university and college analytical chemistry laboratory classes, except perhaps as special projects: coal and coke; blast-furnace slag; water for locomotive and boiler use; boiler scale; heating power of coal and coke; chimney gases; producer gas; photometry (one of Stillman's specialities); tin-plate; Portland cement; clay; bricks; asphalt; paper; soap; and oils and petroleum among many others. In nearly 600 pages this book is a tour-de-force of analytical chemistry as practiced in the early 20th. century.

I'll close with a couple of further nuggets (pardon the pun) from Professor Stillman's career. In 1908 he made the headlines with his discovery of gold in soil excavated in Hoboken N.J. (no gold mines there currently though!). And in 1906 he hosted at the Hotel Astor in New York "a famous synthetic dinner" at which everything but the meats was synthesized chemically. This captured the attention of the "Good Housekeeping" magazine which has an extended interview with Stillman in 1907(Vol. 45). You can find it on-line, and it is graced with a splendid photograph of the heavily moustached Professor Stillman in his laboratory.



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March 2011

San Geronimo Section



Chair's Message

Most of you probably saw the headline "Less Than Half of Students Proficient in Science". The headline was referring to the "Nation's Report Card: Science 2009" recently released (<http://nces.ed.gov/nationsreportcard/science/>). There are two images that come to mind when I reminisce about my early educational experiences with science. The first image is of a science textbook; a thick, boring tome filled with mundane, unexciting facts to memorize before the next test. The second image is of a "typical" scientist; a bespectacled, nerdy individual (usually male) wearing a rumpled white lab coat who performs miracles in the laboratory but is a fish out of water in normal society.

I undertook a project about 15 years ago in an attempt to discover what impressions 4th grade students have regarding scientists. The project consisted of two parts: (1) a team of college students visited 4th grade classrooms and performed simple science demonstrations and (2) the 4th grade students were given a blank piece of paper and asked to draw a scientist. The demonstrations were done using items commonly found around the house – sticking a wooden skewer through a balloon without popping it; adding baking soda to vinegar and having the resulting carbon dioxide inflate a balloon; making "silly putty" out of white glue and borax. The college students visited half of the 4th grade classes (group A) about two weeks before the drawings were made. In the other classes (group B), the drawings were done about two weeks after the college students visited. The drawings were evaluated to determine how the 4th graders visualized a "scientist". The results showed, not surprisingly, that the 4th graders who did their drawings before the science demonstrations (group B) visualized scientists as "mad" or "nerdy" at a much higher percentage than their peers who did their drawings after the college students visited (group A).

So how does this relate to the "Nation's Report Card: Science 2009"? It reminded me of the disconnect between school children and science/scientists. Children perceive science to be a subject contained between the covers of dull, uninteresting books carried out by strange people using weird equipment in sterile laboratories. These perceptions change when children see somebody that looks like an older sister or brother make science come alive with items they have in their homes! I wonder what would happen if most children saw science as a tool that can answer questions they have every day – Why is the sky blue and grass green? What causes a rainbow? How can planes fly? Maybe interest and proficiency would increase!

- Eileen DiMauro, 2011 Chair

San Gorgonio Section

Section Meeting

Friday, March 4, 2011

8:15 a.m.—4:00 p.m.

Chaffey College, Rancho Cucamonga, CA

5885 Haven Ave

Rancho Cucamonga, 91737

Free Academic Laboratory Workshop

The San Gorgonio Section of the American Chemical Society has received a grant to develop a resource network for anyone involved in academic laboratories. We are starting a series of workshops to address general issues of interest. If you are an academic laboratory technician, teacher of chemistry or physical science, department chair or head, school district risk management director, attend these free workshops intended to make your job and students safer!

The first workshop will focus on General Health and Safety Issues, with a focus on Chemical Hygiene Plans. Additional workshops are to focus on Human Resources and/or Lab Management, Regulations and/or Risk Management, Contributions to Choice of Lab Experiments, or topics chosen by participants.

At the first workshop, the participants will meet other lab support professionals, work with each other to update and improve Chemical Hygiene Plans, and explore ways to make the workplace safer.

This workshop is **FREE** to all participants. In addition, the first 100 registrants will receive a complimentary lunch. Lunch is available for \$10 or less. Please feel comfortable bringing your own lunch. There are no parking fees. Please bring both a hard copy and an electronic copy of your current Chemical Hygiene Plan so it can be shared with other institutions.

For further information, please contact Joyce Oakdale at telephone 909-652-6424 or via email at Joyce.Oakdale@chaffey.edu.

Campus Map: <http://www.chaffey.edu/ccmaps/rc.shtml>. **Park in the OmniTrans Parking area - Parking Lot 6. Meeting is in the Theater.**

To Register: Return the following completed form by February 25, 2011.

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San Geronio Section

February Meeting (Continued from Page 11)

Free Academic Laboratory Workshop

Please fax the following information to Joyce Oakdale (909-652-6406) or via email to Eileen de Mauro (edimauro@mtsac.edu) by February 25th, 2011:

General Information:

Name _____

Position _____

Employer Name _____

Employer Address _____

City _____ State _____ Zip _____

Work Phone _____ Cell Phone _____

**E-mail _____

(** mandatory) Please WRITE CLEARLY

Confirmation of registration, travel information, lunch options and campus map will be emailed to you.

Any Dietary restrictions: _____

The following topics are being considered for future workshops. Please number the topics in order of importance or interest. Write in any topic that is important to your institution but not listed here.

_____ Human Resources – Student workers, Temporary Lab workers

_____ Lab Management

_____ Regulations: _____ EPA, _____ OSHA _____

_____ Waste Management _____ Other _____

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_____ Other _____

_____ Other _____

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Contains Dated Meeting Announcement

PERIODICAL

Bi-Section Chemists' Calendar

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