

SCALACS

October 2016

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

Southern California Section

High School Chemistry Teachers Meeting at Occidental College October 29th, 2016

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National Chemistry Week
October 16-22, 2016
Theme: Solving Mysteries Through
Chemistry!

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San Gorgonio Section

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Family Science Festival at Mount San Antonio College October 29, 2016

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SCALACS

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

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Chair's Message

The last few weeks have seen some great events for us. We had a truly successful brewery tour in August at Smog City and I want to thank Heather Mott for helping us get it together. The tour of the Molecular Imaging Center coordinated by Ron Weiner was so successful, we had to add two additional tours! .Nancy did a wonderful job with the 50/60/70 year lunch and I extend my

congratulations to all of our members who have hit that milestone. I am only half way to the first one!

We will be having elections soon and I would love to see a larger turnout of members running for office on the Executive Committee. Being a Member-at-Large is a great way to see how the Section runs and help guide its decisions. If you're interested, please contact Nancy in the Section Office at office@scalacs.org. Also, when you receive the email about the ballot, please go online and vote!

In the upcoming weeks we will be having the annual High School Chemistry Teachers Meeting at Occidental College. This is always a great event and I encourage you to attend even if you are not teaching just to see the wonderful stuff our teachers are doing. The National Chemistry Week theme for this year is Solving Mysteries through Chemistry and NCW runs from October 16 through 22. Please come out and join us at one of our NCW events and help spread the word.

I am writing this to you on the first day of fall 2016. By the time you read it all of our academic friends will be back in session and school should be in full swing. This is the most exciting time of the year to me. I have no idea who is going to walk through the door this year and be in my class. Will one of these students turn out to be the one who gets inspired enough to find the cure we have been looking for? Will there be a young person who finally decides that they wish to become a researcher because of what they see in my class? Is the future doctor who truly makes the difference we so desperately need going to be in my class?

It is with this anticipation that I encourage all of you to think back to your education and that one individual who made the whole difference to you—maybe your thesis advisor or maybe just the person who gave that one lecture that made you finally decide on your path. Now can you be that person to one of our younger members? Can you volunteer at an NCW, Boy Scout, CCED, or Chemistry Olympiad event and be that person who truly helps guide someone into this field that we all love so much?

Best,
 Michael Morgan

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SCALACS High School Chemistry Teacher Meeting

Occidental College

1600 Campus Road Los Angeles, CA 90041

Saturday, October 29, 2016

9:00 a.m. to 3:00 p.m. (lunch included)

2016 theme of National Chemistry Week is "Solving Mysteries Through Chemistry!"

For many years the Occidental Chemistry Teachers Meeting sponsored by the Southern California Section has been the premier place in Los Angeles for teachers to learn from teachers. Please consider coming and sharing your favorite lesson, demo, or trick with us. Already confirmed speakers include Paul Groves, Larry Walker, Debbie Bennett, Caroline Morgan, Ken Mukai, Edye Udell, Michael Morgan, and more! Anyone interested in presenting, please contact the chair, Michael Morgan, at mmorgan@lausd.net. A detailed presentation of the reworked AP Chemistry courses will be included.

Cost: There is a \$30 cost for the program which includes lunch (cash or check). For pre-service teachers, the fee is \$5. There is free parking on campus.

Registration: Registration will be available online at www.scalacs.org. You can also contact Nancy Paradiso at office@scalacs.org.

Sponsored by SCALACS, Occidental College and TOPS Program



Outreach and National Chemistry Week Activities

The 2016 NCW theme is: "Solving Mysteries Through Chemistry"

Sunday, October 23rd and Saturday, October 29th, 2016: National Chemistry Week Activities at the California Science Center, 700 Exposition Park Drive, Los Angeles, CA 90037. Join volunteers for NCW activities.

For more information, or if you would like to volunteer, please contact Henry Abrash at: abrash8@aol.com.

Youth Expo Merit Badge Activity - October 29, 2016

SCALACS is looking for volunteers to help out with the Boy Scout Chemistry Merit Badge activity being held on Saturday, October 29th at the BSA Greater Los Angeles Area Council Youth Expo. The Expo is being held at the Rose Bowl Stadium Concourse. The activity will go from 7:00 am to 4:00 pm, including setup and take-down.

We will have 4 stations at which we will guide the Scouts in various activities. Hands on activities will cover some basic chemical reactions and interactions as well as building a Cartesian Diver and discussing what it means to be a Chemist with the Scouts

Setup will begin at 7:00 am. Our first Scouts will start the activities at 9:00 am. Wrap-up begins at 3:00 pm. We are hoping to help at least 50 Scouts earn their Chemistry Merit Badge! With this many Scouts we would like a minimum of 2 instructors per station. We are asking volunteers to sign up for at least a 2 hour block and show up at least 20 minutes early so you can be checked in and learn about the activity you are signing up for.

Lunch is not provided but there will be snacks and beverages. There will also be a cooler that you are welcome to store your lunches in.

Parking for participants will cost \$10 per vehicle in Lot F located on the southwest side of the Rose Bowl. General public parking is available in Lot K. Limited free parking is also available near the aquatic center. Entrance into the stadium is anticipated to be Gate A on the south side of the park.

If you would like to help out with the activities please contact Derek Marin at Derek.Marin@DunnEdwards.com before Thursday October 27th.

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Call for Nominations Paul Shin Memorial High School Chemistry Teacher of the Year Award

If you know of a local high school chemistry teacher who is making a difference, please make the effort to show how important his/her work is to you and the students. Self-nominations from those who feel they fit the requirements are accepted as well. It's teachers like the recipients of this award who make learning chemistry rewarding. Plus, there is a financial component of \$500. The \$500 will be an unrestricted award directly to the teacher. The winner of the Section Award will also be entered at the National ACS level for the James Conant Bryant Award and the Western Regional High School Teacher of the Year Award. Having won a previous award does not necessarily exclude a nominee; however, the nomination would need to be based on different criteria than the first award.

Nomination Package should include: Biographical sketch of nominee with date of birth, list of any publications, statement (no more than 1,000 words) of nominee's achievements as a high school chemistry teacher including quality of teaching, effective methods, nominee's ability to challenge and inspire students, extracurricular work (science fairs, clubs, etc.). Seconding letters are not essential, but up to five may be included. **Nominating documents should be submitted via email to office@scalacs.org.** Note that signed documents that have been scanned are acceptable.

The deadline for nominations is **November 15th, 2016**. Please feel free to contact Michael Morgan of the Educational Affairs Committee at mmorgan@lausd.net if you have any questions.

Councilor Talking Points

The Talking Points from the 2016 Fall National Council Meeting can be found on our website at http://scalacs.org/?page id=44.



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Call for Nominations 2016 Richard C. Tolman Medal

The Tolman Medal is awarded each year by the Southern California Section of the American Chemical Society in recognition of outstanding contributions to chemistry. These contributions may include achievements in fundamental studies; achievements in chemical technology; significant contributions to chemical education; or outstanding leadership in science on a national level. The nominee need not be a Southern California resident; however, most of the award-related accomplishments must have been made in this area.

The Southern California Section of the American Chemical Society and the Tolman Award Committee are now seeking nominations for the 2016 award. There is no official nominating form for this award; nominations are accepted from any member of this section or of neighboring sections. The nomination package should include:

- an up-to-date curriculum vitae or resume of the candidate
- letters of support from colleagues in the profession describing the candidate's major achievements
- if the candidate is being considered for outstanding teaching, letters of support from former students should be included.

Please submit nomination packages electronically to the Chair of the Tolman Committee at **office@scalacs.org**. Rather than submitting copies of publications, a list of representative publications would suffice. *The deadline for receipt of nominations is December 15, 2016.* Inquiries should be directed to the Chairperson at (310) 327-1216 or via e-mail at office@scalacs.org. A list of winners appended here demonstrates the caliber of awardee sought by the committee.

ı						
ı	1960	William G. Young	1979	Harry B. Gray	1998	Kendall N. Houk
ı	1961	Anton B. Burg		Herbert D. Kaesz	1999	Peter Dervan
ı	1962	Ernest H. Swift	1981	Paul D. Boyer	2000	William A. Goddard III
ı	1963	W. Conway Pierce	1982	Donald T. Sawyer	2001	Peter M. Rentzepis
ı	1964	A.J. Haagen-Schmidt	1983	James N. Pitts	2002	Robert H. Grubbs
ı	1965	Thomas Doumani	1984	Donald C. Cram	2003	Arieh Warshel
ı	1966	Arthur W. Adamson	1985	Arnold O. Beckman	2004	Christopher Reed
ı	1967	Ulric B. Bray	1986	M. Frederick Hawthorne	2005	Fred Wudl
ı	1968	Francis E. Blacet	1987	Clifford A. Bunton	2006	G. K. Surya Prakash
ı	1969	Robert Vold	1988	John D. Baldeschwieler	2007	Barbara Finlayson-Pitts
ı		Robert L. Pecsok	1989	Mustafa A. El-Sayed	2008	Joan S. Valentine
ı	1971	Roland C. Hansford		Linus Pauling	2009	Richard B. Kaner
ı	1972	James Bonner	1991	George A. Olah	2010	Dennis Dougherty
ı		Howard Reiss		Peter C. Ford	2011	Karl O. Christie
ı	-	John D. Roberts	1993	Charles L. Wilkins	2012	John E. Bercaw
ı		Corwin Hansch		Jacqueline K. Barton	2013	Mark E. Thompson
ı		F. Sherwood Rowland		Christopher S. Foote	2014	William J. Evans
ı		Sidney W. Benson		Larry R. Dalton	2015	Michael E. Jung
ı	1978	Thomas C. Bruice	1997	Ahmed H. Zewail		_

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Insights Into IP Law Keith Orso*, Irell & Manella LLP

KOrso@irell.com

A previous installment of this column noted in passing that the United States recently transitioned from a first-to-invent patent system to a first-to-file patent system. This installment addresses differences between the two systems. Suppose a first individual, Fred, invents certain subject matter before a second individual, Sally, invents the very same subject matter independently of Fred. Fred and Sally both file with the Patent Office their own patent applications claiming the same subject matter.

In the first-to-invent system, Fred would be awarded a patent (assuming the claimed subject matter is patent-eligible and otherwise satisfies the requirements of the patent laws) so long as after he came up with the idea, he diligently worked towards actually making the invention a reality—e.g., by making a prototype or drafting the patent application—starting from a time before Sally did. Fred would be awarded the patent even if Sally filed her patent application first. Conversely, if Fred shelved his invention while Sally worked to make the same invention (which she came up with independently) a reality, then it would be Sally who would be entitled to a patent on the subject matter.

In a first-to-file system, by contrast, a patent on the subject matter would be awarded to whichever of the two independent inventors filed his/her patent application first. So if Sally filed first, then the patent would issue to Sally and Fred would be out of luck—and vice versa.

Historically, the United States stood alone in awarding patents to the Freds over the Sallies in these situations. Meanwhile, the rest of the world generally operated under first-to-file systems—and there were good reasons for it. A first-to-file system is more straightforward and arguably more efficient. It also incentivizes inventors to file patent applications sooner, on pain of forfeiting patent rights to someone else who might invent later but file first. One of the goals of patent systems, including ours in the United States, is to promote the progress of science and the useful arts by using the limited monopolies provided by patents to encourage inventors to disclose their inventions to the public, which can then use the inventions as springboards to develop even more inventions.

Critics of the first-to-file system argued, for example, that such a system places too much weight on the speedy filing of patent applications. This, they said, favors inventors with more money and encourages diversion of resources away from inventing. In the end, the United States adopted a first-to-file regime anyway, in harmony with the rest of the world.

* The author earned engineering and chemical engineering under-graduate and graduate degrees, and is a patent attorney and partner at the law firm of Irell & Manella LLP. This column does not constitute legal advice and does not necessarily reflect the views of the firm or its clients.



This Month in Chemical History Harold Goldwhite, California State University, Los Angeles hgoldwh@calstatela.edu

My last two columns were drawn from a new biography ("Pure Intelligence" by Melvyn C. Usselman) of the 19th. century English scientist William Wollaston. This final column on this important scientist will illustrate the varied nature and significance of Wollaston's contributions to the sciences.

Wollaston was a bachelor and some of his biographers have sketched him as a recluse, averse from society. In fact he was a sociable person, intimately involved with the affairs of the Royal Society, serving on its committees and attending its social events. In these gatherings he became acquainted with a number of geologists who stimulated in him an interest in their science and in particular in crystallography. He purchased many minerals and began a careful study of their properties and forms. Like most students of crystals of that period Wollaston was frustrated by the crude instruments used to determine interfacial angles in crystals. These were essentially glorified protractors called contact goniometers. With his understanding of optics Wollaston invented a new instrument, the reflective goniometer, which he described in a paper given to the Royal Society in 1809.

Its principle was brilliant and simple; the instrument measured the angles between light beams reflected from crystal faces and could accommodate quite small crystal samples, as small as 1/50th of an inch. This instrument, which Wollaston did not patent, was soon being made by instrument manufacturers and became, and has remained, one of the most useful tools of mineralogists and crystallographers. With his interest in crystals aroused Wollaston began speculating on the underlying reasons for the plane faces and cleavages of crystals, though he was by no means the first to do so. In a Royal Society lecture of 1812 he showed how the basic forms suggested by Hauy and Robert Hook, the latter more than a century earlier, could be assembled in regular arrays to produce geometric forms that were exhibited in crystals. He built some models, which are still in the collection of the Science Museum in London, to illustrate his ideas.

This line of thought is suggestive of Dalton's view on the atomic theory, and Wollaston, a master of analytical chemistry, was an early supporter of Dalton's views. One consequence of the atomic theory is the law of (Continued on Page 9)

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This Month in Chemical History

(Continued from Page 8)

multiple proportions. The atomic theory was first published in 1807 by Thomas Thomson, a Scottish chemist and textbook author. He based his description with attribution on discussions he had had with Dalton in 1804. In his textbook Thomson discussed the compositions of salts in terms of Dalton's law of multiple proportions. Coincidentally Wollaston had been analyzing various oxalates and tartrates, isolated from byproducts of wine-making. He and Tennant began a manufactory of a range of organic compounds such as cream of tartar and oxalic acid, the latter for use in the textile industry. Wollaston's analyses of normal and acid oxalates were in accord with the law of multiple proportions and he published his results in the Royal Society's journal with the following appended remark: "The inquiry which I had designed appears to be superfluous, as all the facts that I had observed are but particular instances of the more general observation of Mr. DALTON, that in all cases the simple elements of bodies are disposed to unite atom to atom. [I leave to the reader to follow from Usselman's book how Wollaston first enthusiastically adopted Dalton's atomic theory; then abandoned it; and finally returned again to it.]

One final illustration of Wollaston's ingenuity in devising aids for chemists. As mentioned above he was an accomplished analytical chemist and early on endorsed the utility of equivalent weights in analytical calculations. To make the process of using equivalent weights even easier he developed his use of the slide rule into a dedicated slide rule that was engraved with equivalent weights. His logarithmic scale of equivalent weights was published in an article in 1813 and Wollaston produced a number of the instruments. Again he did not patent the idea and manufacturers in both Europe and the United States began to make and sell these instruments. Many science museums have examples of these slide rules in their collections.

In the mid-1820s Wollaston became ill. By 1828 he had problems writing clearly and had numbness in his limbs. He was eventually diagnosed with a brain tumor and on December 22, 1828, William Hyde Wollaston died at his home in London. He was 62 years old.

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San Gorgonio Section



Chair's Message

October will be a busy month for the San Gorgonio Section. On Saturday, October 15 we have our annual luncheon to both recognize our 50- and 60-year Section ACS members as well as learn about the activities of chemistry student organizations from colleges and universities in the Section. It is always a great time for reminiscing and sharing. This year's luncheon will be held at

Magdaleno's in Upland. Complete details are to be found elsewhere in this issue of SCALACS. I hope that many of you will be able to attend this event. Then on Saturday, October 29 the annual Family Science Festival will be held at Mt. San Antonio College. This will be a combined celebration of National Chemistry Week and Mole Day and provides the opportunity for both children and adults to see and experience the fantastic world of chemistry. See the complete announcement in this issue for details.

It's election time again for the Section and nominations are open for the positions of Chair-elect and for Treasurer. In addition, many other opportunities are available for you to become involved. Two of these are the Chemistry Olympiad and Project SEED. From my own experience I can tell you that these are some of the very rewarding ways we have to foster and encourage high school students to consider a chemistry-related career. Feel free to contact me (dpedrsn@csusb.edu or 909 886-2196) if you are interested in being nominated for either of the two positions or would like to be involved in other ways. Even if you feel that you can only offer a few hours of your time during the year I would enjoy hearing from you and discussing the various possibilities.

I would like to close this month with another bit of teaching nostalgia. Frequently in the fall term I taught a course taken by students to meet a physical science general education requirement. To help them see how chemistry is integrated into the overall idea of a broad education I would provide a scenario of me and a poet colleague enjoying a fall picnic in the mountain community of Oak Glen. At that time of the year the leaves of the apple trees are displaying the yellows, oranges, and reds of fall. My colleague would be able to capture that in poetry, a talent I lack, but I could explain the chemical basis for those beautiful colors. There are so many ways to gain and show appreciation of our world and we should always be ready to demonstrate chemistry as one of those ways. National Chemistry Week can provide such an opportunity and I encourage each of you to find a way to participate. Many ideas can be found in the NCW brochures available on the NCW Themes web page (https://www.acs.org/content/acs/en/education/.../past.html).

Let's celebrate Chemistry!

- Dennis Pederson Chair

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San Gorgonio Section

San Gorgonio Section October Luncheon Meeting Saturday, Oct. 15, 2016

Recognition of 50-Year and 60-Year ACS Members College and University Chemistry Clubs

Magaleno's Restaurant

220 N. Central Ave. Upland, CA 91786

Check-in and Social: 11:30 am Luncheon: 12:00 pm

Program: 12:45 pm

This gathering showcases American Chemical Society members with the longest and shortest tenures in the organization. The San Gorgonio Section currently has over sixty chemists with fifty or more years of ACS membership. This year, eleven Section members have achieved the major milestones of 50 years or 60 years of ACS membership. Please join us in celebrating these remarkable accomplishments!

50 Year Members

Dr. Daniel Doonan
Dr. Alan Guest
Mr. Dale Jesse
Dr. Winton Jones
Dr. David Kennedy
Dr. Waldemar Klemm
Dr. Richard Lazarus
Dr. Dallas Rabenstein
Dr. J. Ernest Simpson
Dr. Andrew Zanella

60 Year Member

Mr. Hunter McClure

At the other end of the spectrum, many newer members of ACS have taken advantage of undergraduate and graduate student programs, sometimes through Student ACS clubs. We have invited representatives from Section college and university Chemistry Clubs to share their activities. Please help us welcome our newer members!

This is the perfect gathering to share information and experiences. Speed networking will be used to maximize interactions. Information will available for anyone interested in starting a club, whether for students or more seasoned chemists. We shall be seeking input regarding starting a Senior Chemists Committee/Group similar to the national ACS SSC.

(Continued on Page 13)

San Gorgonio Section

The Mt. San Antonio College Chemistry Department Invites you to



A FAMILY SCIENCE FESTIVAL

Celebrating National Chemistry Week



SATURDAY, October 29, 2016

10:00 am - 2:00 pm

Αt

Mount San Antonio College, Natural Science Complex (Bldg. 7, 60, 61)

> 1100 N. Grand Avenue Walnut, CA 91789

Science activities, games and crafts for children & adults
Hands-on Experiments
Chemistry Demonstrations

Cost: Free public event!

Parking: Park in Lot D. Purchase a daily permit (\$4) from the dispenser.

Directions: For directions and a map, visit: http://www.mtsac.edu/about/location.html

Questions: Contact Eileen DiMauro, edimauro@mtsac.edu, 909-274-4533.

Sponsored by Mt. SAC Chemistry Department, Mt. SAC Chemistry Club, Association of Pre-Pharmacy Learners and Educators (APPLE) Club, and the San Gorgonio Section of the American Chemical Society.

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Luncheon Meeting (Continued from Page 11)

Lunch: Served buffet style. Assorted deli meat platter, assorted cheese platter, assorted bread basket, lettuce, tomato, mayo, mustard, pasta salad, potato salad, and a green salad. Coffee, iced tea, and water are included. Wine and soda are available for purchase.

Cost and Reservations: The cost (meal, tax and tip) is \$15.00 members. \$20.00 non-members, \$10 seniors and retirees, \$10 students, free for ACS members receiving their 50-year and 60-year certificates. Cash or checks only please, at the door. Please make your reservations no later than Tuesday. October 11th by 12:00 **noon** by contacting Dennis Pederson 886-2196) (dpedersn@csusb.edu or 909 or Ernie Simpson (jesimpson@cpp.edu or 909 762-9169) Include your contact information (phone number and email address) and names of persons attending. Please be certain to honor your reservation.

Directions: Magdaleno's Banquets and Catering is most easily accessed from the 10 Freeway. Exit Central Avenue (Exit #49). Go north approximately 1 mile to the restaurant. A map can be found by clicking on LOCATION at the lower right on the restaurant's website: http://www.magdalenos.com. Parking is free in the adjoining parking lot.

SOUTHERN CALIFORNIA SECTION AMERICAN CHEMICAL SOCIETY

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IMPORTANT Do Not Delay!

Contains Dated Meeting Announcement

PERIODICAL

Bi-Section Chemists' Calendar

For more information on these events, please check our website at www.scalacs.org

October

 SG 50/60 Year Member Luncheon—see page 11
 SC National Chemistry Week—Solving Mysteries Through Chemistry—see page 4
 SC High School Chemistry Teachers Meeting—see page 3
 SG Family Science Festival at Mt. SAC—see page 12

November

Deadline for SC High School Teacher of the Year Award—see page 5

December

15 Deadline for the 2016 Tolman Award nominations—see page 6