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May/June 2013

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



**Southern California
Section
Educational Awards
Banquet
Friday, May 17, 2013
Honoring our top
students and
Paul Bender, the Paul
Shin Memorial High
School Teacher of the
Year**

See Page 3

**San Geronio Section Meeting
Student Scholarship and Awards
Recognition Banquet**

Wednesday, May 8, 2013

**“Dissecting Enzymes with Nanometer-Scale
Electronics”**

Dr. Gregory Weiss

See Page 11

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Southern California Section

Chair's Message



We just finished our busiest month in which we bestowed the Tolman Award on Prof. John Bercaw at the Tolman Award dinner, conducted the Undergraduate Research Conference at the Claremont McKenna-Pitzer-Scripps Colleges, had a panel discussion for women chemists at East Los Angeles College, Expanding Your Horizons Conference at Mount St. Mary's College, assisted with "The Disappearing Spoon" presentation on the periodic table by Sam Kean at the Natural History Museum of Los Angeles County, and held Chemists Celebrate Earth Day presentations at the California Science Center, Cal State Long Beach, and Cal State Dominguez Hills. May promises to be a busy month as well with the Education Awards dinner honoring the Chemistry Olympiad participants and presenting the Paul Shin Memorial High School Chemistry Teacher Award. On June 1st there will be an opportunity to volunteer to help Boy Scouts earn the Chemistry Merit Badge.

Over the past several months another new feature has been added to our section, the Southern California Section of the American Chemical Society Facebook Page. I encourage all section members to visit this page for more information on section activities and to post comments and suggestions. Let us know of other activities in which you think section members would be interested.

As you can see from the list of activities a lot of energy is devoted to outreach to the general public, and to students. For section members we provide networking opportunities through our monthly dinner meetings, our support of Western Regional Meetings, and online activities through the ACS Network, our web page www.scalacs.org, and now through our facebook page. We are particularly interested in any additional activities that would support our section members. Please let me know if you have suggestions.

Brian Brady, Chair

Southern California Section

Educational Awards Banquet

Friday, May 17, 2013

Mount St. Mary's College, Donahue Center

10 Chester Place
Los Angeles, CA 90040

Awards will be presented to the top-placing students in the local High School Chemistry Olympiad, to their teachers, to local ACS scholars and to

Paul Bender The Paul Shin Memorial High School Teacher of the Year

6:00 p.m. Check-in

6:30 p.m. Dinner

7:30 p.m. Presentation of Awards

This year, we had more than 1,400 students representing over 40 high schools throughout Los Angeles County take the Local ACS Exam in March. Harvard-Westlake High School finished first overall while North Hollywood High School edged out Arcadia High School by one point to finish first for first year students. The winners of the local exam were invited to participate in the National Exam on April 13th at Occidental College for a chance to be part of the International Olympiad in July in Moscow, Russia. These students, as well as the top performers and teachers from each school of 10 or more participants, will be honored at our annual Educational Awards Banquet, along with the Paul Shin Memorial High School Teacher of the Year, Paul Bender (see page 4 for his biography).

Reservations: We have an Enchilada Buffet featuring chicken and cheese enchiladas with all the fixings. The cost of the dinner is \$20 per person or \$15 for students, cash or check at the door. Please call Nancy Paradiso in the Section Office at 310 327-1216 or email office@scalacs.org by Monday, May 13, 2013 for reservations. *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: The meeting will take place in the Donahue Center in McIntyre Hall on the Doheny Campus. For directions, please go to <http://www.msmc.la.edu/about-msmc/our-campuses/driving-instructions.asp>.

Southern California Section

Paul Bender Paul Shin Memorial High School Teacher of the Year

Nothing makes me happier then to be able to announce Paul Bender as the annual winner of the Paul Shin Memorial Award for High School Chemistry Teaching. Paul has been teaching at Whitney High School since the fall of 1993. Paul got his Bachelors at Biola University in 1993 and then started at Whitney immediately after that. He also earned a Masters degree (also from Biola) along the way in 2003. He has been teaching AP Chemistry since 2008.

Paul has regularly had students placing in the top of the section on the yearly ACS High School Chemistry Olympiad and has many students take part in the semifinal exam. In 2010 one of his students made it all the way to a medal at the International Chemistry Olympiad in Turkey. Our local Olympiad sponsor had much praise for Paul and thought him a excellent choice as this year's winner.

Paul's nominating letters from students show a true dedication to the profession. Sacrificing countless hours beyond the required to his students. His administrators and colleagues praised him as a not only truly dedicated to the school and it's students but also to working very closely with the rest of the faculty. He has been a class sponsor and also brave enough to chaperone students on out of state trips, a challenge I am very familiar with, and it takes true dedication to undertake such a challenge.

It is rare these days to see such dedication as Paul displays. The students from my school participate in many academic competitions and meet the students from Whitney pretty regularly. They are a force to be reckoned with and now after seeing what Paul has done I can understand why. Whitney is very fortunate to have such a strong and dedicated individual as Paul Bender.

Paul will receive a \$500 cash award from the local section, a plaque for display in his classroom, recognition at this year's awards banquet, and bragging rights as this year's winner. In addition we will forward his application next year for the Western Regional ACS Award.

- Michael Morgan, Chair, Education Committee
Francisco Bravo Medical Magnet High School

Southern California Section

Call for Nominations

The Nominations, Elections and Awards Committee of the Southern California Section is soliciting nominations for the election of 2014 Section officers (Chair-Elect and Secretary), members of the Executive Committee, and Councilors. If you wish to propose names (including your own) for consideration, send them to:

Nominations, Elections and Awards Committee
Southern California Section, ACS
Email office@scalacs.org

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Southern California Section

Outreach Activities

June 1st—Chemistry Merit Badge Activity. SCALACS Younger Chemists Committee will have a booth at the Boy Scout Expo at Santa Anita Park Infield. We need volunteers to work with the Scouts on the Chemistry Merit Badge from 9 am to 4 pm. Contact Gerald Delker at delker@earthlink.net, or (626) 622-7776 or Derek Marin at Derek.Marin@DunnEdwards.com.

Councilor Talking Points Highlights Spring National Meeting in San Diego

Due to space constraints, we are not printing the Councilor Talking Points from the ACS National Meeting in San Diego. Please go to our website, http://scalacs.org/?page_id=44 for the complete report.

SCALACS is on Facebook and Twitter!



Don't forget to check us out on Facebook and Twitter! SCALACS has joined the Social Media world with an account on Facebook: www.facebook.com/scalacs, and on Twitter: @SCALACS1. Join us there!

Southern California Section

Congratulations Chemical Heritage Foundation Award Winners

On April 4th, at the Chemical Heritage Foundation Headquarters in Philadelphia, two celebrated chemists received Chemical Heritage Foundation Awards.

Harry Gray, Arnold O. Beckman Professor of Chemistry and Founding Director of the Beckman Institute at Caltech, received the **Othmer Gold Medal** for his revolutionary work in bioinorganic chemistry and his extraordinary contributions to public understanding.

John D. Roberts, the Institute Professor of Chemistry, Emeritus, at Caltech received the **AIC Gold Medal** for his pioneering research on Nuclear Magnetic Resonance and his unparalleled dedication to mentoring new generations of chemists.

Congratulations to both of these Local Section ACS members for their long and celebrated careers and their recognition by the Chemical Heritage Foundation.



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This Month in Chemical History

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

In a column I wrote a decade ago I analyzed a general chemistry text I bought at a flea market: "Outlines of Inorganic Chemistry" by Frank Austin Gooch and Claude Frederick Walker (Macmillan, New York, 1905). Gooch was a well-known analytical chemist at Yale, and the Gooch crucible is familiar to at least my generation of chemists. Walker was then a teacher of chemistry at the High School of Commerce in New York City.

I was reminded of that column by a message I received recently from John Fatherley of Chicopee Massachusetts, a descendant of the Walker family. The Walker Memoirs have been compiled over the years by family members, and Mr. Fatherley sent me the volumes containing further information about Claude Frederick Walker (referred to as Walker in this column). I thank Mr. Fatherley for his generosity in sharing this material with me.

Walker, born in Holyoke, was the son of a distinguished father, Charles Swan Walker, who served in the Civil War, studied theology at Yale and Andover and became a pastor for 16 years in communities in Connecticut, New Jersey, and Massachusetts before moving to the Massachusetts Agricultural College (which became Amherst College) in 1886 where he worked for 20 years as teacher and minister. He received the only Ph.D. ever awarded by Amherst College in 1885, and also wrote extensively on historical topics.

His writing skills seem to have been passed on to his son who, while a student at the Massachusetts College of Agriculture edited two journals: "Aggie Life", and "College Monthly". Quoting from Walker's own reminiscences: "In September 1894, at age nineteen, I became a graduate student in chemistry at Yale University in New Haven, Connecticut – not too far from home – where my father had received his degrees in Arts and in Divinity – more than a quarter century before." Walker worked in Gooch's laboratory on "idometric analysis" (a search for this suggests it's a typo for iodometric analysis). He mentions his platinum Gooch crucible and his burettes. His first paper with Gooch was published in the American Journal of Science and by 1897 he assembled and expanded his publications into a thesis that was
(Continued on Page 9)

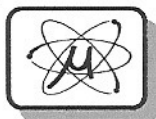
This Month in Chemical History

(Continued from Page 10)

accepted by the chemistry faculty. He was awarded the Ph.D. by Yale in June 1897 at the age of twenty two – the youngest student to have been awarded the doctorate at Yale to that time.

After an anxious period of waiting his appointment as an Assistant in Chemistry at Yale, recommended by Gooch, was approved and he began “seven peripatetic years of teaching” initially assisting in the Elementary Chemistry course at Yale. In 1898 he moved to the State Normal School in Moorhead Minnesota, teaching chemistry and physics; in 1899 he moved to a high and manual training school on the Michigan peninsula near the copper mines. His comments on Moorhead make interesting reading: “I found science teaching exacting but not too difficult...my handful of chemistry students sat before the lecture table while I did my experiments. Then ... they would do theirs.” The source of heat was alcohol lamps. In addition to chemistry he also taught physics and physiology (!) :”There were maps and charts, microscopes and equipment for projection, an Atwood’s machine [for experiments on kinematics HG] ...a powerful plunge battery [where the electrodes were plunged into the electrolyte to generate current electricity, and removed by lifting them between experiments HG] and a static machine, a skeleton in the closet(!) ... and a photographic darkroom.

I found these insights into a dedicated life of teaching chemistry in the late nineteenth and early twentieth centuries to be of great interest. I plan to round off Walker’s story in a subsequent column.



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San Gorgonio Section

Chair's Message

I would like to share some of the feedback I received from last month's Chair's message. As many of you know, the National ACS sends out certificates to local Sections congratulating their fifty and sixty year members. When congratulating the fifty year members in the San Gorgonio Section, an "I" was inadvertently added to Dr. Nancy Adin's name. I deeply apologize for the error. Congratulations to **Dr. Nancy G. Adin** for fifty years of ACS membership!

Regarding my comment that the Section had no sixty year members this year; Dr. Frank Lambert pointed out that he has been a member for more than 70 years! That gave me pause – I went to the Section roster and counted **five** members that have belonged to ACS for more than 70 years and **one** member who joined the organization in 1934 – **he is in his eightieth year of membership!** I don't remember receiving certificates or other acknowledgements from the National organization recognizing membership past sixty years. I will have to look into how to properly acknowledge such longevity. Accomplishments that significant cannot go unnoticed! Thanks to Dr. Lambert for bringing this to my attention. More on this topic next month.

Our Section would like to applaud the top scorers from the recent local section Olympiad exam. The top ten students, limited to a maximum of two per high school, have earned a place in the National Olympiad Exam, held at CSU San Bernardino on April 13. The top five students have earned a San Gorgonio Section college scholarship. Here are the students earning the highest scores:

Olivia Watkins	Upland High School
Sang Park	Webb Schools
Son Truong	San Gorgonio High
Andy Zhang	Claremont High
Julia Ni	Webb Schools
Tinnie Wu	Webb Schools
Erick Corona	Diamond Ranch High School
Richard Lee	Great Oak High School
Joel Guzman	Etiwanda High School
Austin Ing	Etiwanda High School
Joanne Kwon	Fairmont Prep Academy
Ruyue Xu	Webb Schools
Karan Lala	Redlands East Valley High School

Congratulations to the students for this achievement and to their dedicated teachers!

- Eileen DiMauro, San Gorgonio Section

San Gorgonio Section

May Dinner Meeting

Student Scholarship and Awards Recognition Banquet

Wednesday, May 8, 2013

Centro Basco

13432 Central Avenue

Chino, CA 91710

Phone: (909) 628-9014

“Dissecting Enzymes with Nanometer-Scale Electronics”

Dr. Gregory Weiss

Social and Check-in: 5:45 PM

Dinner: 6:30 PM

Featured Speaker: 7:15 PM

Awards/Recognition Program Following

In March, high school students in the San Gorgonio Section region took the preliminary exam to qualify for the National Chemistry Olympiad. From these students, 10 students representing 8 high schools were selected to take the National ACS Examination on April 13th for a chance to be one of the 20 students nationwide who will be attending the Chemistry Camp in June. Our section also uses the preliminary exam to choose the recipients of section-sponsored college scholarships. Please join us in honoring the Section Olympiad finalists and the scholarship winners, a group of truly remarkable students, and their teachers at this meeting.

Abstract: The Weiss laboratory develops new tools from chemistry to understand biology at the level of atoms and bonds. We directly wire viruses and individual proteins into electronic circuits, and watch what happens as electricity passes through them. Together with our collaborators, Prof. Phil Collins and co-workers, we have spot-welded individual proteins into nanometer-scale circuits. Using the electronic signature of the resultant nanocircuit, the single protein can be examined in real-time during protein unfolding, folding, binding, and enzymatic catalysis. For example, tethering a single lysozyme molecule to a carbon nanotube-based circuit produces a stable, high bandwidth transducer for protein motion. Results from examining lysozyme processing various substrates correlate with single molecule FRET

San Gorgonio Section

studies, but also extend our understanding of lysozyme dynamics to include the enzyme's responses to substrate branching and changes to solution pH. The technique provides new insights into the mechanism of an enzyme studied for >100-years, and offers a generalizable platform for dissecting enzymatic catalysis.

Biography: Gregory Weiss earned undergraduate and graduate degrees from the University of California, Berkeley and Harvard University, respectively. Awarded a NIH Ruth Kirschstein National Research Service Award from the NIH, he pursued post-doctoral studies at Genentech. In 2000, he joined the faculty at the University of California, Irvine where his laboratory focuses on the interface between chemistry and biology, including the study of membrane proteins, anti-viral drug resistance, and bioelectronics. Tenured in 2006, he is currently a full Professor and Vice Chair of the Department of Chemistry. His awards include Outstanding Professor in the School of Physical Sciences at UC Irvine (elected by the graduating students), Beckman Foundation Young Investigator, and AAAS Fellow. Selected by the US National Academy of Sciences to represent young scientists from the US at two World Economic Forum "Summer Davos" meetings in Dalian, China. He was twice elected to be Co-Chair of the new Global Young Academy, which includes around 200 top young scientists nominated by the national academies of 55+ countries. He recently co-authored with David Van Vranken a textbook, *Introduction to Bioorganic Chemistry and Chemical Biology*, published by Garland Science.

Dinner: will consist of soup, salad, choice of one of two entrees, rolls and a non-alcoholic drink.

Cost and Reservations: The cost (meal, tax and tip) is \$16.00 members, \$18.00 non-members, \$12 seniors and retirees, \$8 students, free for student honorees and their teachers, cash or check only please, at the door. Please make your reservations no later than Monday, May 6th by 12 noon by contacting Dennis Pederson (dpedersn@csusb.edu, phone (909) 537-5477 or David Srulevitch (srulev@charter.net, phone (909) 594-3070. Include names and number of persons. Please be certain to honor your reservation.

Directions: Traveling East or West on the 60 Fwy, exit on Central Avenue, travel south until you cross Chino Ave. The restaurant will be on the right, across from Canyon Ridge Hospital.

Attention Chemistry Professors: Please bring any extra science or chemistry textbooks that you may have to this meeting so that we may donate them to the students and high school libraries. Thank you!

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Contains Dated Meeting Announcement

PERIODICAL

Bi-Section Chemists' Calendar

May

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10 SG 6th Annual Goldstein Award Banquet—see April SCALACS
17 SC Educational Awards Banquet—see page 3

June

- 1 YCC Boy Scout Chemistry Merit Badge—see page 6

Have a great summer!