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SCALACS

March 2020

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

Southern California Section

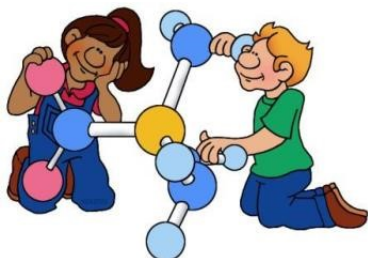
**Due to the Covid-19 virus, all Spring programs will be
suspended for both the Southern California and San
Geronimo Sections**

4th Annual Collaborative Chemistry Conference

March 6, 2020

Moorpark College

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High School Olympiad

March 18-19, 2020

See information on our website

[https://scalacs.org/?](https://scalacs.org/?page_id=29)

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San Geronimo Section

“Careers for Chemists” **Postponed**

Saturday, March 28, 2020

California Baptist University

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Southern California and San Gorgonio Sections of the
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Number 2

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Southern California Section

Chair's Message



Welcome SCALACS members. We have an eventful few months of activities coming up. March 6th is the Collaborative Chemistry Conference at the Channel Islands Boating Center at Moorpark College. The High School Chemistry Olympiad Local Exam follows on March 18th and 19th at local high schools around the Section, and there is a presentation by the Science History Institute on March 26th at LA City College.

In April we have the Undergraduate Research Conference at Occidental College on April 4th, and Expanding Your Horizons on April 25th. The 2020 Tolman recipient will be announced in the April issue of SCALACS.

This year marks the 50th anniversary of Earth Day, and we have scheduled three events within our section for Chemists Celebrate Earth Week, CCEW. The theme this year is "Protecting Our Planet Through Chemistry". More details on these events will follow in the April issue of SCALACS and on our website, www.scalacs.org.

Brian Brady,
Chair

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Southern California Section

SCALACS Sponsors the 4th Annual Collaborative Chemistry Conference

Keynote Speaker: Veronica Wheaton
American River College, Sacramento

March 6, 2020

Moorpark College
7075 Campus Road
Moorpark, CA 93021

The Southern California Section is again sponsoring the Collaborative Chemistry Conference on March 6th at Moorpark College. This is a **FREE** event, but please register so CCC can get an accurate headcount for meals and be able to accommodate any specific needs. Updated building/room location, directions, and parking information will be sent out to registered attendees the week of the conference. **Registration is now open at <http://bit.ly/collabchem2020>.**

CCC is building a program of collaboration and sharing teaching ideas that they hope you will enjoy. **FREE** breakfast & lunch will be provided, as well as a tour of America's Teaching Zoo at Moorpark College through the Exotic Animal and Training Management (EATM) program.

Abstract: I used to begin each lecture with a quiz in an effort to check student understanding of the previous lecture material before moving forward. My thought in doing so was that I was helping students with knowledge acquisition; in reality, I found that I was actually assessing their ability to memorize what happened in the previous lecture knowing that a quiz was imminent while increasing my grading pile. I adopted my "Speed Studying" and "Can U?" techniques as a way of having students interact more during lecture, practice presenting scientific information, and assess the ability to apply the information from multiple topics through discussion. The
(Continued on Page 7)

Southern California Section

High School Olympiad

The situation is rapidly evolving for the local section Olympiad and we don't yet have a permanent plan. National has postponed the Local Section testing until April 16, but school closures could be extended. We will notify participants as we get information. Please see our website:
https://scalacs.org/?page_id=29

The National Test will be held on Saturday, April 25, 2020 at California State University Dominguez Hills for the Local Exam top 15 scorers (must be U. S. citizens or permanent residents, with no more than two from any one school).

On Friday, May 29, 2020 the annual SCALACS High School Awards Night will recognize and honor the Local Exam winners, the National Olympiad nominees, the individual school high scorers with 10 or more participants, and their teachers.

Please see our website at https://scalacs.org/?page_id=236 for the **Contest Letter** with all the details and to pay online for groups and individual students.

If you have any further questions, please contact Jerry Delker, Olympiad Chair, at delker@earthlink.net or Nancy Paradiso in the Section Office at office@scalacs.org.



Southern California Section

This lecture has been cancelled—sorry!

**Science History Institute Lecture
“Communicating Risk: DDT Past & Present”**

Michal Meyer, Ph.D.

Editor in Chief, Distillations Magazine

Thursday, March 26, 2020

Los Angeles City College

Holmes Hall 006

855 N. Vermont Avenue,

Los Angeles, CA 90029

6:00 pm - Pizza

7:00 pm - Lecture

The Southern California Section is pleased to welcome Dr. Michael Meyer from Distillations Magazine at the Science History Institute. Her talk includes many images from the Science History Institute's collections and tells the story of DDT.

Biography: Michal Meyer is editor in chief of Distillations at the Science History Institute. Distillations is an online magazine that aims to connect science, culture and history. Our audience is the curious public and our magazine's tagline is "Using Stories from Science's Past to Understand our World." Michal holds a PhD and a master's degree in history from the University of Florida and a bachelor's degree in physics from Victoria University of Wellington, New Zealand. Michal has previously worked as a weather forecaster in New Zealand and Fiji, as magazine editor of the Jerusalem Post in Israel, and as editor of the History of Science Society Newsletter at the University of Florida.

Abstract: There are many people today who understand DDT in one dimensional terms, who, if they think about it, view it as the chemical essence of evil, a stand in for all that has been problematic
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Southern California Section

The Southern California Undergraduate Research Conference April 4, 2020 **Cancelled Occidental College**

Occidental College is excited to host this year's ACS Southern California Undergraduate Research Conference in Chemistry and Biochemistry. Dr. Jean-Pierre Fleurial from the Jet Propulsion Lab (JPL), will be giving a seminar on thermoelectric materials.

The conference will take place on **Saturday April 4, 2020. Abstracts are due by March 6. The deadline to register is March 24, 2020.**

For more information and to register, go to the UGRC website: <https://www.oxy.edu/academics/areas-study/chemistry/scurc-2020>.

2020 Expanding Your Horizons Los Angeles Saturday, April 25, 2020 **Cancelled Mount Saint Mary's University Chalon Campus**

Expanding Your Horizons (EYH), a career day generously supported by the Southern California Section, informs girls in grades 5-8 about careers in math- and science-related fields. Girls participate in hands-on workshops such as dissecting pig hearts, isolating DNA, and making colors with chemistry. Women lead workshops for parents, teachers and counselors about making math and science a career option for girls.

If you are a woman interested in leading a hands-on workshop for girls, volunteering to help, or have questions, please contact Eleanor Siebert (esiebert@msmu.edu).

Southern California Section

DDT Lecture Abstract (Continued from Page 5) **Cancelled**

with our relationship with the natural world. However, DDT has had a three dimensional past, one that involves scientists, advertisers, mothers, gardeners, and others. I will be exploring how risk was understood by these different groups from the creation of DDT as an insecticide to its banning via the Stockholm Convention on Persistent Organic Pollutants.

RSVP: The lecture and pizza are free, but we do need to get a headcount for the pizza. If you'd like to attend, please email Nancy Paradiso in the Section Office at office@scalacs.org. by **Monday, March 23, 2020**. Please indicate whether you'd like to join us for pizza or just attend the lecture.

Parking: For a campus map, please go to <https://www.lacitycollege.edu/About/Maps-Parking/Campus-Map> to LACC.

Collaborative Chemistry Conference Abstract **(Continued from Page 3)**

"Speed Studying" follows the introduction to the periodic table where I have students adopt an element to use during the remainder of the course. Students interact with each other on the topic given using only their knowledge and their periodic tables in timed rotations throughout the room. The "Can U?" portion is then a follow-up written exercise where students answer a prompt from me about something they learned during their interactions. This workshop will demonstrate the techniques, give an opportunity for participants to try out the techniques, and then leave time for questions and feedback. While there is nothing fancy or technologically advanced about the techniques the students seem to benefit from the practice of speaking their scientific knowledge one on one, and beginning lecture with more activity seems to help focus throughout the remainder of the lecture.



This Month in Chemical History

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

The major discoveries and new ideas in chemistry in 1920, a century ago, are well covered in the Annual Reports of The Chemical Society (of London) for that year and in this column I continue my examination of that resource.

Some of the most remarkable developments of the year are in the area described as inorganic chemistry though general or fundamental chemistry might be a better description. ...“ on the oxygen standard all atomic weights, with the exception of hydrogen [!] are exact whole numbers, and that the fractional values we have accepted as the result of highly accurate work are merely fortuitous statistical averages due to a mixture of two or more isotopes.” This refers back, of course, to the exploration of the isotope concept just a handful of years earlier by Soddy and Fajans. (While Soddy’s name is probably familiar to you, Fajans may be less so. I think I had better devote a column to Fajans soon. He deserves it).

The work of Harkins is probably also unfamiliar, but he was influential during the development of theories of atomic structure at this time. In 1917 he suggested that all elementary atoms were built up of helium or helium plus hydrogen atoms. A feature of Harkins’ idea is that “the hydrogen isotope H_3 [sic] plays an integral part in atomic structure... that very probably it is identical with the nebular material called nebulium. First detected by [J.J.] Thomson, then more fully confirmed by Aston [it] has now been prepared from hydrogen.” It is fascinating to see, from our vantage point of a century more of discoveries, how distinguished scientists of 1920 were struggling with these new concepts of atomic and nuclear structure. A dozen years later the neutron was discovered and greatly clarified views of nuclear structure and isotopes.

Another quotation is apt:” Strange it is that after all these years the old hypothesis of Prout should rise triumphant..” In the early 19th Century William Prout was struck by the fact that on the $H=1$ scale many atomic weights are close to whole numbers – far more than should be the case if atomic weights are randomly distributed. Prout’s hypothesis, that all

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This Month in Chemical History

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atoms are built up from hydrogen atoms, was enthusiastically adopted by some leading chemists, including, for a while, Davy, but was dismissed by Berzelius who pointed to examples like chlorine that did not fit the hypothesis. And here, a century later, Prout finally triumphs.

Aston's work on the positive ions in discharge tubes and the detection of isotopes appeared in 1920. Aston worked with J.J. Thomson originally, but is now an independent investigator. Neon has two clear isotopes of masses 20 and 22, the former being the more abundant. (Neon has a measured atomic weight of 20.2). Aston concludes from his mass spectral studies that chlorine has isotopes of masses 35 and 37; other masses observed are due to small amounts of hydrogen and carbonyl compounds. Nitrogen has no other isotope and is a pure element. Both hydrogen and helium are pure elements and the atomic mass of hydrogen is 1.008. Aston's experiments were not sensitive enough to detect deuterium, and it was more than a decade later when Urey demonstrated the existence of "heavy hydrogen". "It may now be supposed that an elementary atom of mass M may be changed to one of mass $M+1$ by the addition of a positive particle (H) [!] and an electron. If both enter the nucleus an isotope results."

The International Committee on Atomic weights has reviewed recent work and has recommended only one change to revise the atomic weight of scandium from 44.1 to 45.1. Experiments on atomic weights of tin, fluorine, scandium, silicon, and bismuth, by conventional chemical methods, have confirmed previously accepted values.

I conclude with a report that has major significance today. McLennan has reported on the large-scale extraction of helium from natural gas. The Bow Island gas supplied to Calgary in Alberta, Canada, was found to contain 0.36% helium; the majority of the gas was methane (91.6%). Liquefaction of the gas followed by two fractionations by Claude columns (used in preparing oxygen from liquid air) produced helium of 98-99% purity. The estimated costs of producing helium by this method were about \$50 per 1000 cubic feet (at STP). I include this because we are being profligate in our use of liquid helium, essential for the operation of nmr instruments and MRI equipment for medical diagnoses. This noble gas is a limited resource, and we must make every effort to conserve it.



Insights Into IP Law

Keith Orso*, Irell & Manella LLP
KOrso@irell.com

Recent editions of this column have explored the “on sale bar” in patent law and explained how it is a doctrine designed to prevent inventors from commercially exploiting their inventions for too long before filing patent applications. Selling or offering for sale an invention more than one year before filing a patent application on the invention can render the invention unpatentable. But what counts as a sale?

We all buy (and maybe even sell) things regularly. But whether there has been a sale or offer for sale that would trigger the “on-sale bar” is not always as straightforward as it might seem. For example, what if a drug company contracts out its manufacturing to another company? Is that a “sale”?

In one case, a specialty drug company had developed an anticoagulant formulation and method for making it. The company did not have its own manufacturing facilities and was not capable of making its product in house. So it paid another enterprise to manufacture three batches of the drug for commercial use according to the company’s method. It paid \$140,000 for each batch (the market value was more than \$20 million per batch). Each batch received a “Commercial Product Code” and a customer lot number, and each stated that it was released to the company for commercial and clinical packaging.

In subsequent patent litigation, the party accused of infringement argued that the above activity, which occurred more than one year before the company filed a corresponding patent application, created an on-sale bar that invalidated the company’s patents. It argued that the transactions were “commercial sales” triggering the on-sale bar because the arrangement constituted commercial exploitation from the standpoint of both the drug company and the outside manufacturer, noting that the activity permitted the drug company to stockpile its product for future use. This stockpiling, in turn, replenished the pipeline of product that had been depleted when the company earlier ceased to use a different manufacturing method.

The accused infringer also argued that the drug company triggered the on-sale bar by offering to sell the end product to its distributor more than one year before filing the patent application.

The trial court disagreed on both counts and ruled that there was no on-sale bar. The court of appeals initially reversed, but then affirmed after taking a second look, as will be discussed in the next installment of this column.

* The author earned engineering and chemical engineering undergraduate 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.

Chair's Message



In late January I had the privilege of attending the ACS Leadership Institute along with our Section's Chair-Elect, Jenifer Nalbandian. As someone new to active local section participation it was very helpful to discuss topics with leaders of other sections and compare notes on what works and what challenges are common between the local sections. I came away from the sessions with a better understanding of how the sections function and a very deep appreciation for the contributions of our great board members, volunteers, and event participants that have made the San Gorgonio Section successful. I offer a heartfelt thank you to all of you.

March marks the kickoff of the annual Chemistry Olympiad in which high school students take the National Chemistry Exam and compete to participate in the U.S. National Chemistry Olympiad, as well as for scholarships provided by the San Gorgonio Section. Details regarding the Chemistry Olympiad are available on the San Gorgonio Section Website.

On **Saturday March 28 a "Careers for Chemists"** event will be held at California Baptist University in Riverside, as described elsewhere in this issue. We invite all interested undergraduate students to attend and actively participate in this event.

Thanks to extensive efforts of our section Counselor, Eileen Dimauro, the new San Gorgonio ACS Local Section website has been launched. Relevant information concerning the Local Section and upcoming events will be posted. We anticipate that timely updates to the website as well as the Local Sections Instagram page will provide a convenient mechanism for all members and other interested parties to stay informed regarding the section activities. This is an ongoing process so the site content/appearance may change frequently until a final format is found to be most informative, as well as convenient to access and navigate, so bear with us.

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San Gorgonio Section

San Gorgonio March Section Meeting

Careers for Chemists (Alternatives to an Advanced Degree)

Saturday, March 28, 2020 Postponed

California Baptist University, Business Building 202

8432 Magnolia Avenue

Riverside, CA

The San Gorgonio Section is pleased to continue its exploration of "Careers for Chemists." People who major in chemistry are aware of the pathway from a B.S./B.A. to a graduate degree or health care profession via pharmacy, dental or medical school. Exciting opportunities also exist for those who do not wish to pursue an advanced degree. Speakers will share career opportunities and experiences available to those with Bachelor's degrees. Following their presentations, speakers will participate in a workshop where they will be available for questions and mentoring.

Lunch will be in the award-winning campus cafeteria after the program. Campus tours will be available during this time.

- | | |
|-------|--|
| 9:30 | Check-in and social |
| 10:00 | Welcome – Dr. Ralph Riggin
"What's happening on campus" –
Dr. Jenifer Nalbandian |
| 10:30 | Career speakers |
| 11:15 | Workshop and mentoring with speakers |
| 12:00 | Lunch and campus tours |

Luncheon, Cost and Reservations: Lunch will be provided by the CBU Chemistry Department. There is no cost for students to attend. The cost for ACS members and nonmembers is \$10. Please make your reservation no later than **Sunday, March 22** by contacting Ralph Riggin (rm.riggin@yahoo.com). Please honor your reservation. *(Continued on Page 13)*

San Gorgonio Section

Careers for Chemists (Continued from Page 12)

Directions: California Baptist University is located at 8432 Magnolia Avenue in Riverside off the 91 freeway. The main campus entrance is at the intersection of Campus Bridge Drive and Magnolia Avenue. When you enter campus please stop at the welcome booth and let them know you are here for the American Chemical Society Meeting. The Business Building is the 2nd building on the left hand side as you drive south on Campus Bridge Drive. Park in the large lots on the right hand side of Campus Bridge Drive. Parking is free and no pass is needed. *Our meeting is in Business Building 202.

Chair's Message (Continued from Page 11)

---ACS San Gorgonio Local Section website: <http://www.sgacs.org>
---ACS San Gorgonio Local Section Instagram:
<https://www.instagram.com/sangorgonioacs/>

As always I welcome any suggestions, comments, etc. from members of the section or other interested parties. My email is: rm.riggin@yahoo.com. Feel free to contact me at any time.

Ralph Riggin,
Chair

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Bi-Section Chemists' Calendar

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

Due to the Covid-19 Virus outbreak, all Spring programs for both the Southern California and San Geronio Sections are suspended. Please see our websites for updated information.

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**Check our websites for activities:
www.scalacs.org
www.sangorgonio.sites.acs.org.**