ACS Chemistry for Life™

SCALACS

January/February 2017

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

Southern California Section

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2017 Chair
Southern California Section
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Chemical Rainbows and Liquid Crystal Souls:
The Spirit of Alchemy
in the History of Art Lecture
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Chair's Message

Greetings Everyone and Happy New Year!

Lately, I have been thinking about how our Southern California ACS chapter has continued to successfully grow a little more every year. There is no doubt that this growth and notable successes are due to the immense determination and hard work that you, the members, put into your everyday effort in pursuing and carrying your passion for the chemical sciences and its many disciplines.

I'm thrilled to start this New Year as our Section Chair. I have been working with the ACS and SCALACS in different capacities, and now as Chair, I want to bring a little of my vision for student success and collaboration. It is my goal to strengthen our existing partnerships with the many sectors in which chemical sciences are their "bread and butter," and to reach out to other sectors in which we can be an agent of transformation and change. I'm very devoted to the importance of reaching to young students and engaging them in the transformative power of chemistry. This is an endeavor that I want to stress during this year, and it will take help from all of us! I also want to diversify the myriad of activities that we as society members participate in order to foster a sense of community.

During late fall and early winter, I have been looking back and reflecting on the many ways our society impacts lives. Now, looking forward to our future endeavors, I'm curious and excited to find out where our hard work will take us. With this said, I'm happy to congratulate Dr. Bob de Groot as Chair-Elect. Bob and I have been meeting and dialoguing on how can we better support each other. We have come to the decision that fostering each other's ideas with a common theme will help us both thrive when planning programmatic aspect for our members. Furthermore, we want to create, develop and implement a programmatic aspect that is cohesive and will last for the next two years. We will be starting this year, with what we expect to be a great lecture at the

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January Section Meeting

Chemical Rainbows and Liquid Crystal Souls: The Spirit of Alchemy in the History of Art Lecture by David Brafman

Wednesday, January 18, 2017
7:00 p.m.

Museum Lecture Hall, Getty Center
1200 Getty Center Drive,
Los Angeles, CA 90049
310-440-7300

The Art of Alchemy @ The Getty: Long shrouded in secrecy, alchemy is now recognized as the ancestor of modern chemistry. Alchemists were notorious for attempting to make synthetic gold, but their goals were far more ambitious: to transform and bend nature to the will of an industrious human imagination. For scientists, philosophers, and artists alike, alchemy seemed to hold the key to unlocking the secrets of creation. Alchemists efforts to discover the way the world is made have had an enduring impact on artistic practice and expression around the globe. Inventions born from alchemical laboratories include metal alloys for sculpture and ornament, oil paints, effects in glassmaking, and even the chemical baths of photography. The mysterious art of alchemy transformed visual culture from antiquity to the Industrial Age, and its legacy still permeates the world we make today.

Reservations: This event is free, but tickets are required. We have 30 tickets available for this exciting lecture. If you would like to attend, please **RSVP to Nancy Paradiso in the Section Office via email at office@scalacs.org by Monday, January 16th. Tickets are on a first-come, first-served basis.**

Chair's Message (Continued from Page 2)

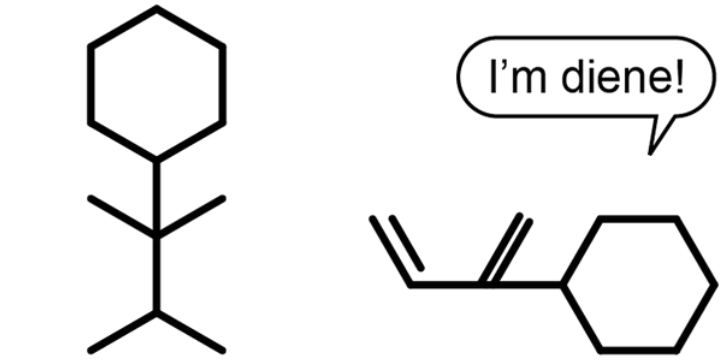
Getty Center: **"Chemical Rainbows and Liquid Crystal Souls: The Spirit of Alchemy in the History of Art."** The lecture will be held on Wednesday, January 18, 2017 at 7:00 p.m. in the Museum Lecture Hall. Admission to the lecture is free; however, tickets are required. SCALACS has reserved 30 tickets to be distributed as first-come, first-served basis. Please contact Nancy Paradiso at office@scalacs.org to reserve your ticket. See page 3 for more information.

In closing, I'm very excited about this opportunity. I want to invite you to reach out to me and to become active. I strongly believe it is in diversity of thinking where true strength resides. Bob and I are eager to hear from you, work with you and for you, and to learn about your recommendations. You can email me at RIVERAA2@elac.edu.

I hope I can count on you during this new journey for SCALACS!

En Buena hora!

Armando



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Long Beach California • January 19, 2017 Open House 9am-4pm

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Election Results

Thanks to everyone who voted in our electronic election. We've gotten a lot of good response about the how easy it is to vote. We'd also like to congratulate our newly elected members. Their terms of office begin January 1, 2017.

Chair-elect: Bob de Groot

Secretary/Treasurer: Barbara Belmont

New Members of the Executive Committee:
Alexander Alschuler, Morgan McCarthy and Edye Udell

Councilors:
Sofia Pappatheodorou and
Barbara Sitzman

Alternate Councilors:
Ana Gamboa and Ralf Haiges

We want to thank those members who were willing to serve as candidates in this election. It's not too early to start thinking about nominating a candidate for our next cohort of section leaders. Get involved!

Insights Into IP Law

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

When the United States recently transitioned from a first-to-invent to a first-to-file patent system, it changed the definition of "prior art." As described in the previous edition of this column, the term "prior art" essentially describes the publicly-accessible information against which the subject matter of a patent claim is compared in order to determine whether that subject matter is patentable (e.g., novel).

Before the transition to the first-to-file regime, patents and printed publications—and even knowledge or use by others in this country—constituted prior art if they pre-dated "the invention thereof by the applicant for patent." The date of invention by the applicant was presumed to be the filing date of the patent, but the applicant could submit evidence supporting an earlier date of invention to narrow the universe of prior art for the invention by as much as one year. This was referred to as "swearing behind" the prior art.

The ability to swear behind the prior art afforded inventors a modest "grace period" to tinker with, and improve, their inventions, and to explore commercial opportunities before investing in the pursuit of a patent. It also provided inventors with some breathing room to engage patent attorneys or agents to prepare the patent applications, or time to prepare such applications themselves.

The swearing behind was limited to one year, however, so as to encourage prompt filing of patent applications and rapid disclosure to the public of new inventions. If an inventor could remove prior art dated more than one year before the filing date of a patent application, then the inventor would have an incentive to delay filing an application until others started using the invention (or tried to patent it themselves), thereby effectively extending the term of exclusivity beyond what Congress intended. Indeed, the inventor would enjoy unofficial exclusivity up until he or she filed a patent application and through patent issuance, followed by the full term of exclusivity provided by the issued patent. Because the inventor could swear behind prior art dated more than one year before the filing date of the patent application, prior art arising after the date of invention but before the date of the application would not imperil his or her ability to obtain the patent. And because the old regime awarded patents to the first person to invent, not the first person to file a patent application, the earlier inventor would not have to worry about being scooped by a later inventor. The one-year limit on swearing behind foreclosed such game playing. The next edition of this column will explore prior art in the new first-to-file regime.

* 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

I have got into the habit of starting off the New Year's columns with looking back one hundred years. I am not going to change my (relatively) recent ways and so this column, and perhaps a couple of succeeding columns, will be drawn from Volume XIV of the Annual Reports on the Progress of Chemistry for 1917 issued by The Chemical Society of London (now The Royal Society of Chemistry). This is a rather slim volume. "The continuance of war conditions has led to a further diminution of published research…" In 1917 the U.S. entered the war against Germany and its allies and much of the research carried out by both sides during the conflict was war-related and not published at the time. Still there is enough research of interest to provide material for a few columns.

Isotope separation (the coinage of the term isotope by Soddy dates back only a few years from 1917) was a topic of continuing interest. Lead nitrate derived from carnotite, a uranium vanadate mineral containing small amounts of lead from the radioactive decay of uranium, "was subjected to fractional crystallization more than a thousand times. [!] A determination of the atomic weight of the metal in the least and most soluble fractions gave numbers agreeing within 0.006 per cent., which is well within the limits of the possible experimental error." "Isotopes cannot be separated by crystallization processes."

The work of W.D. Harkins on the evolution of the elements is directed towards understanding the basis of the periodic table. Harkins postulated that all elements derive initially from hydrogen via helium nuclei thus giving rise to two distinct series of elements: " those beginning with helium and containing elements of even atomic number, the other beginning with lithium and containing elements of odd atomic number." He observed that even-numbered elements are present in the crust of the earth, or meteorites, in greater abundance than those of odd number. This perhaps reflects the relative stabilities of their nuclei.

The work of the Braggs, father and son, on X-ray diffraction by crystals of the alkali metal halides is controversial. Their results "appear to be incompatible with the ordinary molecular hypothesis as applied to solid substances." To clarify, the Braggs showed that there are no NaCl molecules in a salt crystal. This was an unpalatable view to many

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This Month in Chemical History

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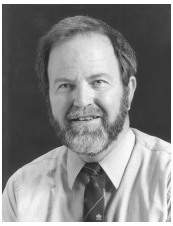
chemists at the time; it is only in hindsight that we can see that the work of the Braggs is entirely consistent with the ionization hypothesis put forward by Arrhenius thirty years earlier. The study of crystal structure was still in its infancy in 1917, and many subsequent studies showed the correctness of the view advanced by the Braggs. Langmuir suggested an interpretation that more accords with our present view; he advanced the idea that the entire crystal represents a single molecule. (Langmuir became one of the most ardent supporters of the views of G. N. Lewis on ionic and covalent bonds, and the octet rule.)

In an important addition to the techniques of X-ray diffraction of crystals Debye and Scherrer have shown that a powder method can be used to determine structures of materials for which the crystallographic system (required by the Bragg method) is not known. They investigated graphite and so-called "amorphous" carbon and showed that the latter is identical structurally to graphite, the difference being solely in the state of subdivision of the graphite crystals. Thus "there are but two structurally different modifications of carbon, namely, diamond and graphite". The Debye-Scherrer method is still widely used in X-ray studies of powders.

To inorganic chemistry: in Group II element #4 is still being called glucinum. (Apparently some beryllium compounds have a sweet taste; hence the name glucinum. I warn my readers not to check this by personal experiment. Beryllium compounds are toxic!) The melting point of glucinum has been estimated to be 1278°. The element was prepared by electrolysis of sodium glucinum fluoride and was estimated to be 99.5% pure, the main impurity being glucinum carbide.

There is more to be written about chemistry in 1917. Watch this space.



Chair's Message

New year's greetings to all. Short and sweet is going to be the theme of this first message for the new year. To begin, I want to express my deep appreciation to the other members of the executive committee. Eileen DiMauro, David Srulevitch, Ernie Simpson, Larry Mink, and Laurie Starkey. Their assistance and input has been and will continue to be invaluable. I particularly want to single out Ernie Simpson who represents us so effectively at the national level in his role of Councilor. As a member of the Local Section Committee, Ernie has been instrumental in alerting us as to grant opportunities and helping with the application process. One of the grants we received provided the funding for a very successful laboratory safety workshop held early in 2016. The target audience was high school teachers and college laboratory staff and plans are to present this workshop again this year in the fall at a different location in the expansive San Gorgonio Section.

What else is on tap for the upcoming year? First is what has become an annual event, the presentation by Ernie Simpson on some aspect of the Chemistry of Wine. This is scheduled for Friday, February 24th. Specific details can be found on page 11. The Chemistry Olympiad comes in March and the annual high school student awards dinner in May. We were successful in increasing the number of high school participating in 2016 and hope to add more this year. Fall brings the recognition luncheon for 50-, 60-, and 70-year ACS members in September, National Chemistry Week in October, and our annual meeting in November. We also plan to have at least two other evening dinner meetings. Topics and potential speakers for these meetings are yet to be identified. This is one area where you can really help. Contact me (dpedersn@csusb.edu) with your ideas. Helping with the Chemistry Olympiad, participating in a National Chemistry Week activity, serving as a Section Liaison at one of the colleges or companies, or assisting in the development of an enhanced internet presence for the Section, are some other areas where you might consider becoming involved. None of these entails a significant time commitment and I would be happy to provide specific details. With your help, 2017 will be an even more successful and exciting year.

- Dennis Pederson, Chair

San Gorgonio Section

Friday, February 24, 2017
3:00 –5:00 pm

"The Chemistry of Wine"
Dr. Ernie Simpson

Collins College of Hospitality Management
Bldg. #79A,
Wine Lecture Auditorium, Room #1263
California State Polytechnic University, Pomona
3801 West Temple Avenue
Pomona, CA 91768-2557

See the San Gorgonio Section website (http:// sangorgonio.sites.acs.org) for complete details and registration form.

Dr. Simpson's lecture will include an overview of wine and wine making as well as detailed descriptions of the chemical composition of grapes and wine, laboratory methods for analysis of grapes and wines, sensory and organoleptic methods used for wine, the role of tannin and other phenolic compounds in wine and some potential health aspects of wine. Integrated with the talk will be wine samples to demonstrate the different components of wine and wine varieties.

Biography: Dr. Simpson joined the Chemistry Department at Cal Poly Pomona in 1968 after completing his BS, MS and Ph.D. (Organic Chemistry) at the University of New Mexico and spending one year as a visiting professor at Pomona College. In 1973/74 he was on leave as a visiting Research Associate in the Department of Enology and Viticulture at UC Davis. He is an active member of American Society for Enology and Viticulture and has served on the editorial board of the society's journal. He has published a California Wine Guide. He is a member of the Society of Wine Educators and the American Wine Society. Dr. Simpson was named as an ACS Fellow in 2012 and in 2013 received the Provost's Award for Excellence in Service at Cal Poly Pomona. *(Continued on Page 12)*

The Chemistry of Wine (Continued from Page 11)

Wine Tasting: All lecture attendees must be 21 years of age or older

Reservations: Strongly recommended as space is limited to the first 75 who register. Download the registration form from San Gorgonio Section website (http://sangorgonio.sites.acs.org). Reservations must be prepaid in cash or check and mailed to **Dr. J. Ernest Simpson**; **226 Cucamonga Avenue**; **Claremont, CA 91711-5015**. Reservations must be received no later than **February 17, 2017**.

Cost: $15.00 fee (includes main lecture with wine samples, crackers and cheese). Make checks payable to: Cal Poly Pomona Foundation. On the note line add: Simpson Collins College Scholarship.

For a fee of $35, a registrant will also receive a RANDOM 750 mL bottle of wine from Dr. Simpson's wine collection. The wine will most likely be a California red, port or champagne with an original purchase price of between $20 and $100. If vintage-dated, it will probably be between 1996 and 2014.

For a fee of $50, a registrant will have the opportunity to pre-select one bottle from a list of wine that will be provided by Dr. Simpson upon receipt of the fee.

All net monies raised by the event will go the Dr. and Mrs. Simpson Collins College Scholarship.

Disclaimer: Dr. Simpson cannot guarantee the quality (drinkability) of the wines from his collection, but to the best of his knowledge, they are in sound condition. All sales are final.

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The Chemistry of Wine (Continued from Page 12)

Directions: From Interstate 10, take the Kellogg Drive exit. Heading south on Kellogg Drive, stay in the right lane and curve right onto University Drive. Stay on University Drive past 3 stop signs, then turn at the first left (Center Circle Road) up the hill to Kellogg West.

From I-57, exit Temple Ave. Go north/west following Cal Poly signs past the lights at Valley Blvd. Turn right onto University Drive. Take the third right (Center Circle Road) up the hill to Kellogg West and the Collins College for Hospitality Management at the south end of the parking lot.

A campus map can be found at www.kelloggwest.org, Go to Locations and Points of Interest and click on the campus map.

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PERIODICAL

Bi-Section Chemists' Calendar

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

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