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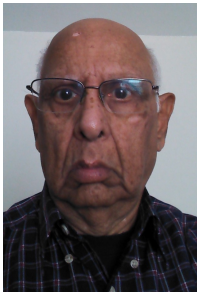
SCALACS

January/February 2019

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

Southern California Section



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Volume LXXIV January/February 2019 Number 1

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Chair's Message

Happy New Year to all SCALACS members and hope you enjoyed a great holiday season.

For 2019, I would like to continue the direction set forth by Chairs of recent years, having witnessed their achievements first hand as a member of the Executive Committee. The strategic plan worked out by our ACS National leadership for 2018 and beyond, emphasizes the following commitments:

VISION: Improving people's lives through the transforming power of chemistry

MISSION: Advancing the broader chemistry enterprise and its practitioners for the benefit of Earth and its people

CORE VALUES: Passion for Chemistry and the Global Chemistry Enterprise - promoting the health of the chemical enterprise by supporting investments in education, training, entrepreneurship, research, and innovation.

DIVERSITY AND INCLUSION: We believe in the strength of diversity in all its forms, because inclusion of diverse people, experiences, and ideas leads to superior solutions to world challenges and advances chemistry as a global, multidisciplinary science.

Towards the above goals, I wish to seek the support of our SCALACS Executive Committee in implementing the following:

- Encouraging girls to pursue science/technology education and eventually careers in these fields
- Enhanced interaction with students and teachers at the elementary, middle and high school levels
- Supporting ACS Student Affiliate groups at the community college and university levels in their activities
- Inviting/involving industrial sector scientists to participate in SCALACS events and in organizing trips by students to their establishments

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Chair's Message (Continued from Page 2)

- Promoting multidisciplinary education/research activities
- Improving the SCALACS website and interactive media sites (Facebook, Twitter, Instagram etc.) to enhance readership and generate enthusiasm and participation of the community at large

Towards the above objectives, we will invite suggestions and new and novel ideas from SCALACS members and Industrial Organizations located in our area. We will also enlist the support and participation of members of the San Gorgonio Section.

Looking forward to a great 2019.

Krishna Kallury, Chair
kkallury@socal.rr.com
(310) 212 6097

2019 Expanding Your Horizons
Saturday, March 9, 2019
Mount Saint Mary's University

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. There are also 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).

Registration for the conference will open in mid-January. All girls in grades 5-8 and their parents are invited to participate. There is a $20 fee for each participant to cover lunch and materials. Note that only paid registered participants may attend the conference. Please register online; there is no on-site registration: www.expandingyourhorizonsla.org.

Advances in Chemistry
By Krishna Kallury

COSMETIC FUNCTIONAL INGREDIENTS FROM BOTANICAL SOURCES FOR ANTI-POLLUTION SKINCARE PRODUCTS

Air pollution is an ever increasing environmental and health problem around the world and is especially severe in populated metropolitan areas. While some of the pollutants arise from natural disasters (forest fires, volcanic eruptions, dust storms), the major sources are anthropogenic (human made activities) such as combustion of fossil fuels, industrial emissions, vehicular exhausts and agricultural sources (livestock farms, application of fertilizers etc.). Primary pollutants are carbon monoxide, carbon dioxide, sulfur dioxide, nitric oxide, nitrous oxide, low molecular weight hydrocarbons, dioxins and metals such as lead and mercury. Secondary pollution arises from chemical/photochemical reactions in the atmosphere involving ozone, peroxyacetyl nitrate, hydrogen peroxide and aldehydes. Airborne particulate matter of different sizes and compositions are prevalent in cities, such as carbon particles carrying a variety of pollutants adsorbed on them. Exposure to these pollutants causes detrimental effects on human skin, such as premature aging, pigment spot formation, skin rashes and eczema, and can worsen some skin conditions, such as atopic dermatitis. Lung infections and cardiovascular problems are further manifestations.

These pollutants penetrate the skin and interact with epidermis cells, such as keratinocytes and melanocytes, generating reactive oxygen species producing pro-inflammatory cytokines and cause nuclear translocation and subsequent binding and activation of genes encoding xenobiotic metabolizing enzymes such as cytochrome P4501A1. The best way to combat this is to apply to the skin a coating of antioxidants and agents that trap metals and other chemicals. Examples of such antioxidants include polysaccharides, lipids, polyphenols, catechins, pigments, flavonoids, terpenoids and phenylethanoid glycosides. Botanicals that contain these antioxidants are algae, Eriodictyon Californicum, Camellia Sinensis, Marrubium Vulgare, Schinus Molle, Camellia Japonica, and Schisandra Chinensis. Cosmetic formulations containing these antioxidant botanical extracts are available in the market and newer ones are being developed.

For a detailed review of air pollutant related skin problems and botanical solutions, visit the journal Cosmetics 2018, volume 5, 19

Insights Into IP Law

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

An earlier installment of this column explained that an inventor who allows unrestricted and uncontrolled use of an invention—even a concealed invention like a spring hidden in a corset—can be denied a patent, or can have his or her patent invalidated, on a theory of prior "public use." An invention is considered abandoned to the public upon "public use," within the meaning of the patent statute, and once abandoned, the invention cannot then be withdrawn from the public domain by patenting. As explained in another installment of this column, however, when an inventor must "publicly" use an invention (e.g., road pavement) to determine whether the invention works for its intended purpose, such use will not necessarily defeat patentability. But what if the use is by someone other than the inventor? If such use is nonetheless under the inventor's control and at his or her direction, then the analysis is largely the same. On the other hand, if the use is independent of the inventor, the question is whether such use was sufficient to place the invention in the public's possession.

In a recent case, the courts addressed whether a patent to a drug formulation was invalid based on earlier clinical trials using a formulation developed by someone other than the inventor. That person came up with the formulation, and administered the trial, independently of the inventor. The case raised several issues. One issue was whether use of the formulation in the clinical trial was "open and free" such that the drug formulation could be said to have been placed in the public's possession.

The evidence showed that the participants in the clinical trial were given the drug formulation to take home, and used the invention as claimed. The participants were required to return unused medication, but some failed to do so and were given more medication anyway. The trial court concluded that the participants were not prevented from using their personal supply of the formulation however they saw fit, and that their unfettered use of the formulation for weeks at a time itself constituted a "public use."

The Court of Appeal disagreed, noting that the participants agreed that only they would take the medications, and promised they would keep accurate usage logs and would return unused amounts. The study administrators were bound to dispense the formulation only to trial subjects, and were held accountable for secure storage and recordkeeping. The fact that a "tiny fraction" of vials were lost without penalty to the participants, and that self-administration at home was required, was not determinative and did not foreclose a finding that such usage was sufficiently controlled and restricted. Other issues raised by the case will be addressed in future columns.

* 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.

This Month in Chemical History

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

In my last column I mentioned that a March 1955 copy of "The Indicator" was given to me by a colleague who found it while clearing out his garage! In this column I will conclude a discussion of how this find gave me, and I hope my readers, insight into the chemical world of the Northeast U.S. in that now remote time.

The Editorial page is titled "Our Waste of Human Resources" and, true to its Cold War date, is given over to a comparison between the proportions of Russian and U.S. students entering scientific fields. Given that the Russian statistics may be exaggerated, the differences are still striking. In Russia, since 1917 (the date of the revolution) the number of institutions of higher education has increased tenfold; the number of students in them has grown from about 100,000 to 1,500,000. In the same period higher education institutions in the U.S. have doubled in number and student numbers have increased five-fold. However the proportion of science graduates is over 40% in Russia, including many women; in the U.S. it is only 30% with few women .

The gap in engineering graduates is equally arresting. From 30,000 graduates in Russia in 1951 the number is planned to increase to 40,000 by 1955. In the U.S., in contrast, numbers of engineering graduates have been falling: from 52,000 in 1950 to 17,000 in 1952! A slow rise in then expected to 34,000 in 1957. This "waste of human resources has been our greatest extravagance" and, combined with declining sources of needed raw materials points to a dark picture for the future. My readers can put their own assessments on the accuracy of these predictions.

In addition to the presentation of the William H. Nichols medal to Wendell M. Latimer, this issue of "The Indicator" mentions a number of other seminars and symposia to be given to different groups of chemists in the Section. The "Metropolitan Microchemical Society" holds its annual symposium at the American Museum of Natural History presenting talks by, among others, Frederick D. Rossini of Carnegie Tech. on "Petroleum Hydrocarbons"; and Charles Maresh of American Cyanamid on "Physical Constants with the Microscope". The Analytical Group will hear a talk by Dr. G. Naimark of White Laboratories on "Industrial Analytical Laboratory Record Keeping Systems". You will be aware that in 1955 digital computers

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were still in their infancy, and were not yet widely available in either academia or industry. (A personal note: my wife, Marie, joined the staff of the Cornell Computing Center at just about this period to work with their brand new IBM machine that used wired programs; punched card input; and had about 20K of RAM).

The Organic Group of the New York section was to hear a talk by Nelson J. Leonard of the University of Illinois, in the Hotel New Yorker, on "1,2-Diketones and Tropolones. " Professor Leonard, a distinguished organic chemist, was Editor of "Organic Syntheses" and Chair-elect of the Division of Organic Chemistry of the A.C.S. More organic chemistry for the Westchester Chemical Society, which was to hear E.C. Taylor of Princeton discuss "The Chemistry of Aromatic N-Oxides"; and for the Organic Chemists' Discussion group of the North Jersey Section with a presentation by Carl Djerassi, then at Wayne University, on "Chemistry of Some Natural products from Latin American Plants".

Chemical education was the topic of a Symposium of the Staten Island Subsection. Speakers from High Schools, Colleges, and Industry would review the teaching of chemistry at all levels to understand the problems involved; what solutions to those problems were emerging; why too few students were choosing chemistry as a career; and how chemical education could best equip students for careers in chemical industry. Some situations seem always to be with us.

Finally a word about "media". Station WFUV, F.M. 90.7, broadcast weekly on Wednesdays from 7.15 to 7.30 p.m. (prime time!) "Everybody's Chemistry", a series of interviews conducted by Dr. Frederick Leonard with experts from pharmaceutical companies and medical research institutes on health-related issues. An eye-catching title was "The Biochemistry of Baldness"; other ailments covered on the programs included arthritis, pain relief, and restoration of the rhythm of the heart.

This look at the vigor of the chemical enterprise in the Eastern United States has left me impressed as to the range and scope of the offerings available to A.C.S. members and others in that region. It has inspired me to look for other local section journals of the past to evaluate their activities. If any of my readers have copies to offer, I would appreciate hearing from them. My email address appears at the head of this article.

Chair's Message

Even though this is my first SCALACS Chair's Message, I have been involved in the San Gorgonio Section (SGS) since 1967. This is my 2nd trip through our Chair-Elect/Chair/Past-Chair sequence, some 46 years after my first time. I have been one of our two Councilors since 2010. Our SGS will celebrate 70 years in 2019 after ACS President Linus Pauling brought our Charter to our first official meeting at a Citrus Station before UC Riverside was built.

On October 27, 2018, I was honored with the E. Ann Nalley Award for Volunteer Service at the nWRM at Cal Tech. I tried to thank my mentors and VIPs who helped me over my 53 years of ACS membership and volunteer service. My path to and in the SGS for roughly my first 15 years was blazed and aided by Nelson Smith & Corwin Hansch (Pomona College), Vasu Dev, Irv Geller, Paul Hiemenz, & Don Smith (Cal Poly Pomona), George Helmkamp & Robert Newman (UCR), Ernie Ikenberry (U. of La Verne), Denny Nelson & others (Sunkist), Bob Manning (Society for Applied Spectroscopy), Freeman Bovard (Claremont Joint Sciences Dept.), Jim Hammond (Consultant), Jim Crum & Dennis Pederson (CSU San Bernardino), and Mitz Kubota and Art Campbell (Harvey Mudd College). Back then SGS had 300-400 members and a lot more industrial members at Kaiser Steel, Sunkist, General Dynamics, etc. At times I wondered if getting a 10% turn-out of our membership at a SGS meeting was worth all the effort. However, percentage-wise we often did better than the Southern California Section.

Between 1985-2005 my SGS involvement lessened as I got busier at CPP. I attended meetings and gave my "Wine Chemistry" talks when asked. By 2006-7, SGS was having serious problems with having enough leadership due to relocations and the lack of volunteers. National ACS called a section Town Hall Meeting led by Tom Beattie of the ACS Local Section Activities Committee. About 20 people attended and a nucleus of 5-6 SGS members got more involved/re-involved and formed an Executive Committee, which along with our

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Dr. Ernie Simpson
"Wine Chemistry and Identifying International Wines Using the Periodic Table"

Friday, February 22, 2019,
2:00 – 5:00 pm

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 the audience will do a blind tasting of 9 wines from around the world. In honor of the ACS and the United Nations' Declaration of 2019 as the International Year of the Periodic Table, participants will try to identify each wine's country or state, the region or wine type / grape varietal, and the vintage year using their palate, prior knowledge, clues given during the lecture, a copy of the Periodic Table, and a list of possible answers expressed in terms of chemical element symbols and atomic numbers. For example, NaPa 20B S would be a possible clue for a Napa Valley Cabernet Sauvignon. Prizes will be given for the closest answer for each of the nine wines

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
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Wine Chemistry Lecture (Continued from Page 9)

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 the 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. He retired from teaching at CPP in 2008. He is on the Board of the Pace Setters, CPP's retired faculty and staff organization. In 2018 he received the E. Ann Nalley Award for volunteer service to the ACS Western Region. On February 2, 2019 he will be one of 83 Inaugural Class Inductees into the Hall of Fame for the Foothill-Citrus California Basketball Officials Association covering the period from 1949 to 2019.

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 the San Gorgonio Section website. 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 15, 2019.

Cost: $20 (includes main lecture with wine samples, snacks, crackers and cheese). Make check payable to: Cal Poly Pomona Foundation. On the note line add: Simpson Collins College Scholarship.

For a total fee of $40, 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 $80. If vintage-dated, it will probably be between 2000 and 2015.

For a total fee of $60, a registrant will have the opportunity to pre-select one bottle from a list of wines that will be provided by Dr. Simpson upon receipt of the fee.

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Wine Chemistry Lecture (Continued from Page 10)

All net monies raised by the event will go to 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.

Directions: From Interstate 10, take the Kellogg Drive exit. Heading south on Kellogg Drive, stay on 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 campus map.

Chair's Message (Continued from Page 8)

one Councilor Jim Hammond, brought enough life and leadership to get SGS off the "endangered" sections list. I want to thank all of our SGS members and friends who helped us over the last 10 years to resurrect our Section to one of which we can be proud. In no particular order, and I apologize for my senior memory and omissions, I want to thank: Eileen Di Mauro, Pat Perez, & David Srulevitch (Mt. SAC), Dennis Pederson & Larry Mink (CSUSB), Charlene Jewell (Sunkist), Kevin Simpson & others (UCR), Joyce Oakdale (Chaffey College), Jim Hammond (deceased), Joelle Opotowsky, Jodye Selco, & Laurie Starkey (CPP), Bruce Liu (ACB Sci. Tech), Tom Beattie (San Diego Section), Virgil Lee & Nancy Paradiso (Southern California Section), and Emily Viggers (Johnson & Johnson). The SGS today has grown to some 750 members, mostly students and professors and we are very spread out.

I will end with my main 2019 goals of starting a YCC group in SGS, creating a monthly SGS electronic Newsletter, and to get more young chemists on our Executive Committee. Any ideas, volunteers, opinions, or just to say you read this far, please let me know at jesimpson@cpp.edu or (909) 762-9169.

- Ernie Simpson, SGS Chair

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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

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